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Differential Fertility in Louisiana.

J. Allan Beegle
Louisiana State University and Agricultural & Mechanical College

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DIFFERENTIAL FERTILITY IN LOUISIANA

A Thesis

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Louisiana State University and
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by
J. Allan Beegle
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ABSTRACT

This study seeks to investigate the patterns of reproduction and the differentials in fertility within the state of Louisiana. Due to wide variations in degree of rurality, type of farming, race, ethnic origin, and numerous other socio-economic factors, it is suggested that human fertility may also fluctuate. It is the purpose of this study to investigate the nature of the association of such factors with the rate of reproduction.

Since the ordinary birth rate has little validity, another measure of the rate of reproduction, the fertility ratio, is employed throughout this study. The fertility ratio is obtained by relating the number of small children in a population to the number of women in the childbearing ages. The index, as used throughout this study, is as follows:

$$\text{Fertility Ratio} = \frac{\text{Number of children under 5}}{\text{Number of women 15-44}} \times 1000$$

This ratio is computed for the various segments of the population residing in the parishes and the wards of the state. Insofar as possible, the data are subjected to graphic treatment.

The study proves that the different segments of Louisiana's population are reproducing at widely divergent rates. The populations residing in some of the wards are reproducing at rates three or four times as great as those residing in other wards.

The rural-farm people in Louisiana are bearing an unduly large

proportion of the state's children in comparison with the urban people. Residents of villages and unincorporated portions of cities (the rural-nonfarm residents) are more fertile than the urban population but less so than the rural-farm population. Thus, the fertility of population is found to be inversely associated with density. The task of rearing and educating the future citizens of the state, therefore, is falling heavily upon the farm people.

Differences in the fertility of whites and Negroes in Louisiana are small. The Negroes who reside in the cities of the state are somewhat less fertile than the whites who live in urban places. The Negroes living on farms, however, are characterized by higher rates of reproduction than the whites living on farms.

The French, Catholic portion of Louisiana is characterized by distinctly higher rates of reproduction than the Anglo-Saxon, Protestant portion. This difference holds true for all residential groups and both racial groups.

Only slight differences in fertility exist between the types of farming areas in Louisiana, when strictly comparable residential and racial groups are considered. Probably because of their dominant French culture, the Central Louisiana Mixed farming, the Sugar Cane, and the Rice areas tend to be consistently highest in fertility. The Brown Loam, the Delta - Red River Cotton, and the Sand Hills - Cut-Over areas, on the other hand, tend to be consistently lowest in fertility.

Like many of the southern states, the residents of Louisiana are

contributing a disproportionately large share to the total population of the United States. In comparison with similar groups in other states, Louisiana's rural-farm and rural-nonfarm groups are especially fertile. Her urban population, however, is comparatively very infertile. In comparison with the residents of other states throughout the Northeast, Middlewest, and Pacific Coastal states, the residents of Louisiana are contributing more than their share to the rearing and educating of the nation's future citizens.

For the past 50 or 60 years, the size of Louisiana's families has been steadily decreasing. This trend is not peculiar to Louisiana's population. It also characterizes the residents of each of the regions, divisions, and the United States as a whole.

CHAPTER I

INTRODUCTION

Among demographic phenomena, none is more important in determining the volume of human resources than the rate of reproduction. Mortality rates, marriage rates and migration also influence the size of population and rate of growth, but the rate of reproduction is the crucial factor, especially in modern society. Historically, all groups have not contributed equally to succeeding generations. That the phenomenon of differential fertility exists today is thoroughly established.

This study, therefore, attempts to determine and to describe the nature of differentials in the rates of reproduction of the various groups which make up the population of Louisiana. An attempt is made to examine in some detail the varying rates at which different groups in the state contribute to the future population.

Although some attention is given to trends in fertility, primary emphasis is placed upon differential reproduction as indicated by 1940 data. Implicit to this study is the belief that social phenomena, such as the declining birth rate, do not exist as isolated phenomena, unrelated to tendencies elsewhere. Thus, although this is an attempt to make an intensive survey of differential fertility in a single state, data also are drawn upon for the United States, the regions, divisions, and other portions of the world.

A. Objectives. The specific objectives of this study may be listed categorically as follows:

1. To summarize the historical development of studies dealing

with the differential birth rate and to outline the accumulated body of factual information regarding this phenomenon.

2. To note the general trends in fertility in the known world, in the United States, in its regions and divisions, and to show the position of Louisiana in relation to these trends.

3. To determine how the rate of reproduction varies from one part of Louisiana to another and to portray the differences graphically.

4. To indicate the nature of fertility differentials in Louisiana according to: (a) residence and size of population aggregate, (b) race, (c) ethno-religious area, and (d) type of farming area.

5. To compare the rates of reproduction of the population in Louisiana with comparable residential and racial groups in the populations of the other 47 states, and in those of the 11 other southern states.

B. Scope of Study and Procedure. This study is limited primarily to an investigation of fertility differentials in this state. Data pertaining to the entire country, the regions and divisions are used only insofar as they are related to or serve to emphasize conditions in Louisiana.

Except for a brief consideration of trends, the study is restricted to an analysis of fertility rates in 1940. The basic sources of data are the volumes of the Sixteenth Census.[1] The study, therefore, is confined to

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[1] Sixteenth Census of the United States, Population: Characteristics of the Population of Louisiana, Second Series. (Washington, D. C.: Government Printing Office, 1941).

an analysis of fertility through data made available by the United States Bureau of the Census. It is not within the limits set by the present study to investigate any of the multitude of specialized problems related to differential reproduction which require elaborate subsidiary data.

The methodology used in this study does not depart from the accepted procedures used in investigations of this kind. The standard methods of computing the fertility ratio, of classifying the data, and of presenting the information in graphic form were freely drawn upon. The procedure of studying differential fertility by means of successive graphic stages in the unfolding of this process will be sketched in Chapter IV.

C. Definitions. A number of terms which are used throughout the study require precise definition. These include the following measures of reproduction.

1. The Birth Rate.[2] This index of a population's fertility expresses the relationship between the number of births during a period of time and the total population. Although a simple, generally understood measure which can be computed annually, the birth rate has serious weaknesses. The chief disadvantages arise from the lack of refinement and from the fact that birth registrations are incomplete and are not reported for

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[2] See the discussion by George C. Whipple, Vital Statistics (2nd ed.; New York: John Wiley and Sons, Inc., 1923), pp. 237-273; also Robert R. Kuczynski, Fertility and Reproduction (New York: Falcon Press, 1932), p. 4.

all areas.[3] The birth rates used and cited are crude rates and were calculated as follows:

$$\text{Crude Birth Rate} = \frac{\text{Number of births per year}}{\text{Total population}} \times 1000$$

The validity of the crude birth rate may be enhanced tremendously by various refinements. Useful refinements most frequently made are those which restrict the denominator of the expression according to: (a) age, (b) sex, and (c) marital status. Similarly, the numerator may be refined according to: (a) sex, and (b) live or stillbirths. Still other less common refinements of the crude birth rate are sometimes made.

2. The Fertility Ratio.[4] This fertility index, used throughout the study as the measure of reproduction rate, expresses the relationship between the number of small children in a population and the number of women in the childbearing ages. Although not a perfect measure of fertility, it has certain distinct merits or advantages: (a) it is refined or standardized by age and sex; (b) it does not rely upon birth registration data;

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[3] See the discussions by T. Lynn Smith, The Sociology of Rural Life (New York: Harper and Brothers, 1940), pp. 131-132; Warren S. Thompson, Population Problems (3rd ed.; New York: McGraw-Hill Book Company, Inc., 1942), pp. 151-153. For an excellent discussion of the under-registration of births, see T. Lynn Smith, "Rural-Urban Differences in the Completeness of Birth Registration," Social Forces, XIV (1936), 368-372, and P. K. Whelpton, "The Completeness of Birth Registration in the United States," Journal of the American Statistical Association, XXIX (1934), 125-136.

[4] For excellent treatments of this index, see Kuczynski, Fertility and Reproduction, pp. 4-14; Thompson, Population Problems, pp. 156-160; and Smith, The Sociology of Rural Life, pp. 132-133.

(c) it cannot be misused as easily as the birth rate; and (d) it can be calculated from information ordinarily obtained in a community survey.

On the other hand, several disadvantages of the fertility ratio may be listed. The most serious arise from the facts that: (a) it is not valid if there is a high concentration of women in certain ages of the childbearing span; (b) it is available for large areas such as states and the United States for census years only; (c) it cannot be used as a measure of the fertility of foreign-born; and (d) it will be in error if there is any tendency for small children to be enumerated in one category and their mothers in another.[5]

The fertility ratio, as used throughout this study, is computed as follows:

$$\text{Fertility Ratio} = \frac{\text{Number of children under 5}}{\text{Number of females 15-44}} \times 1000$$

Variations of this formula have sometimes been used as an index of fertility, due largely to the impossibility of setting exact limits to the childbearing span. Students of population have commonly based the ratio either upon the number of women 20-44 or upon the number of[6]

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[5] An example of this occurs in some rural areas where a significant proportion of young Negro children are living with their grandparents, their mothers residing and working in a city. See Louise Kemp, " A Note on the Use of the Fertility Ratio In the Study of Rural-Urban Differences in Fertility," Rural Sociology, X (1945), pp. 312-313.

[6] Among the studies using these ages are: Warren S. Thompson, Ratio of Children to Women 1920, Census Monograph XI (Washington, D. C.: Government Printing Office, 1931); Warren S. Thompson, Average Number of Children per Woman in Butler County, Ohio: 1930 (Washington, D. C.: Government Printing Office, 1941); National Resources Committee, National Data, Urban Data (Washington D. C.: Government Printing Office, 1937).

women 15-49.[7] An explanation of the variability in the ages used as the childbearing span is given by Kuczynski when he states:

> There are no definite limits to the childbearing age. But in Western and Northern Europe births of a mother under 15 years or over 50 years practically never occur. As to the relative limits, statisticians agree that women over 15 years are to be considered as of child-bearing age, but the upper limit is flexible. Some draw the limit at 45 years while others put it at 50 years. The actual facts are not conclusive since the number of births for women from 45 to 50 years, while small, is not negligible. Theoretically, it is certainly more correct to relate the births to the women 15-50 years. But since the women of 45-50 years do not much influence the total number of women to which the number of births is related, their inclusion can have an undue effect upon the general fertility rate. On the other hand, some countries do not publish separately the number of women 40-45 and 45-50 years, and this technical factor made us finally choose 50 years as the upper limit of child-bearing age.[8]

3. The Net Reproduction Rate.[9] The net reproduction rate is a

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[7] Among the studies using these ages are: Thompson, Average Number of Children per Woman in Butler County, Ohio: 1930; Sixteenth Census of the United States, Differential Fertility 1940 and 1910 (Washington, D. C.; Government Printing Office, 1943); Robert R. Kuczynski, Birth Registration and Birth Statistics in Canada (Washington, D. C.: The Brookings Institution, 1930), pp. 209-214; Robert R. Kuczynski, The Balance of Births and Deaths (New York: The Macmillan Company; Washington, D. C.: The Brookings Institution, 1928-1931), I, II.; and Robert R. Kuczynski, Fertility and Reproduction, pp. 4-6.

[8] Kuczynski, The Balance of Births and Deaths, I, pp. 102-103.

[9] See for example the methods of computing this rate in Robert R. Kuczynski, The Balance of Births and Deaths, I, pp. 40-54; and Louis I. Dublin and Alfred J. Lotka, "On the True Rate of Natural Increase," Journal of the American Statistical Association, XX (1925), 305-339.

measure which indicates the extent to which a population is reproducing itself. It takes into consideration birth and death rates, expressing the net effect of the two variables. The net reproduction rate shows how much a population may be expected to gain or lose every generation, assuming that the age distribution remains stabilized on the basis of existing birth and death rates for each age group. The rate of 100 is ordinarily taken as the level at which a population neither increases nor decreases. Rates above 100, therefore, indicate that a population is more than reproducing itself, and rates under 100 indicate that a population is failing to replace present numbers.

D. Importance of the Study. The study of differential fertility is of significance to all structural and functional aspects of group life. Even more basic, differential fertility is the decisive factor in determining the numerical importance of different groups. Along with death and marriage rates, the birth rate governs the extent of human resources. As Smith points out, "Birth and death, together with marriage, make up the three great crises in the lives of individuals. From the standpoint of society the fertility of the population, the mortality of the population, and marital condition of the people are among the most important items in a system of national or state bookkeeping."[10]

Thus, through a study of one of these vital indices, one will obtain basic information bearing upon the differential contributions of

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[10] The Sociology of Rural Life, p. 131.

various groups to the future population of the state.

In a remarkably short period of time, differential rates of increase may completely alter the composition of a population. Thompson has this in mind when he states:

> . . .three rather distinct problems—eugenic, cultural, and political—arise out of the differential character of the birth rate in Western lands today. The first has to do with the varying birth rates in different classes within the community and deals with the maintenance and improvement of the biological heritage of a people; the second deals with the development and transmission of a desirable social heritage and is very closely associated with, if not a part of, the first; while the third arises from the fact that different nations have different rates of growth and that, as these rates change, the economic, political, and military equilibrium between nations is likely to be upset.[11]

A knowledge of differential rates of reproduction is basic to local, regional, and national planning. As isolated units of information, rates of reproduction are of little value; in conjunction with other factual data, however, they are significant to all aspects of group life. The following quotation from a National Resources report gives emphasis to this point:

> Large variations in reproductive tendencies among different population groups may also have a profound effect, in the course of a few generations, on the composition and social characteristics of the national population. Differences in net rates of reproduction, commonly found today, are sufficient to give one of two equal groups twice as many descendants as the other in the next generation. At the present time the social effects of differential reproduction outweigh the apparent biological effects, since the

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[11] Population Problems, p. 165.

> greatest differences among large groups exist among people located in different areas and in different types of community.[12]

A knowledge of birth statistics and fertility differentials, therefore, will show the directions in which to look for significant trends in the process of population growth or decline.

E. Order of Presentation. First, a summary of the literature relating to differential fertility is presented. This review consists of an historical treatment of the approaches to the study of differential rates of reproduction. In so doing, the steps by which the study of fertility differentials has been advanced are outlined, and the present state of the accumulated knowledge concerning this phenomenon is summarized.

This section is followed by a review of the trends in fertility throughout the known world, in the United States, in the regions, and in Louisiana. This is felt to be essential to a thorough understanding of the situation in 1940.

An intensive study of fertility differentials in the state of Louisiana in 1940 is then presented. One chapter is devoted to a survey of the variations in fertility in Louisiana. This portion consists chiefly of the methodological approach designed to suggest differentials demanding additional study. A detailed analysis of each of the following differentials in fertility is given in successive chapters: (1)

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[12] National Resources Committee, Problems of a Changing Population (Washington, D. C.: Government Printing Office, 1938), p. 119.

residential differentials, (2) racial differentials, (3) ethno-religious differentials, and (4) differentials by types of farming areas.

A separate section is set aside for a comparison of fertility rates in Louisiana with those in the nation and the regions. This is then followed by a summary of the main propositions and conclusions.

CHAPTER II

A SURVEY OF LITERATURE

"... the phenomena of differential fertility are not something new that lately arose because of economic or other developments of recent human social organization, nor are they peculiar to our special kind of civilization. And not only are the phenomena themselves of ancient lineage, but they have been apprehended and discussed by really quite respectable intellects long prior to these present times."[1] So wrote Raymond Pearl, who for more than a quarter of a century devoted a large share of his time to the study of human fertility. On the basis of this comment, we may expect to find a vast literature on the subject of differential fertility. It is true, however, that the earlier works consist chiefly of scattered observations and conclusions deduced from experience. Pearl places the problem in its rightful perspective when he says: "... aside from a few exceptional pieces of earlier work, technically adequate statistical attacks upon the problem of differential fertility may fairly be said to date from about the beginning of the present century, the problem itself is as old as biology ..."[2]

These observations, therefore, provide a basis for our approach to

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[1] Raymond Pearl, The Natural History of Population (New York: Oxford University Press, 1939), p. 21.

[2] Ibid., p. 17.

a review of the literature. Though many schemes might have been devised, the following treatment will serve, not only to point out the steps by which the study of differential fertility has been advanced, but also to outline the present state of our knowledge of this phenomenon. The studies of differential fertility are divided into three major periods. The first embraces early non-statistical observations; the second includes the early statistical data; and the third includes the mature statistical findings. In the latest period, the development of the crude birth rate and the fertility ratio as measures of the rate of reproduction occupy positions of importance. Finally, the condition of our present knowledge of fertility differentials is reviewed according to (a) residence, (b) race and nativity, (c) religion, (d) occupation, economic and social status, (e) education and, (f) personal characteristics and other factors.

A. Early Non-statistical Observations. In numerous of the very early writings, comments are made which inferentially bear upon differential fertility. In many others, straightforward statements are made about the nature of differences in rates of reproduction. These observations, however, seldom extend beyond those bearing upon the greater vitality and fertility of rural populations, and those attributing greater fertility to the poorer, underprivileged classes.

Both Plato[3] and Aristotle[4] were concerned with population differentials insofar as they impinged upon the problem of the ideal state. Plato advocated that the legislator be empowered to encourage unions of the superior members of society and to discourage unions of the inferiors. In order to insure the production of the best possible stock and to maintain population balance, he considered it necessary for the ruler to dispose of the inferior offspring and to otherwise control the birth rate. In viewing essentially the same problem Aristotle recommended that the ruler consider length of procreative life, age at marriage, physical constitution, and other aspects relating to fertility in legislating for the welfare of society. Like Plato, he also advocated the exposure of deformed children and the limitation of population as measures necessary to the welfare of the state.

Among the earliest recorded observations on fertility differentials were those of Polybius,[5] (about 203 to 121 B. C.), the last of the Greek philosophers. Polybius well understood the low rate of reproduction in cities, and in highly sophisticated fashion, pointed out the

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[3] Plato, The Republic of Plato, translated by Benjamin Jowett (London: The Colonial Press, 1901), Book V, pp. 148-153.

[4] Aristotle, Politica, translated by Benjamin Jowett (Oxford: The Clarendon Press, 1921), Book VII, pp. 1334-1335.

[5] Polybius, The Histories of Polybius, translated by Evelyn S. Shuckburgh (London: Macmillan and Company, 1889), II.

stupidity of entreating the gods to explain certain population problems when reason could supply the answer. The words of Polybius are so relevant to our discussion of fertility differentials that they merit quotation here:

> But those things, of which it is possible to find the origin and cause of their occurrence, I do not think we should refer to the gods. I mean such a thing as the following. In our time all Greece was visited by a dearth of children and generally a decay of population, owing to which the cities were denuded of inhabitants, and a failure of productiveness resulted, though there were no long-continued wars or serious pestilences among us. If, then, any one had advised our sending to ask the gods in regard to this, what we were to do or say in order to become more numerous and better fill our cities, - would he not have seemed a futile person, when the cause was manifest and the cure in our own hands? For this evil grew upon us rapidly, and without attracting attention, by our men becoming perverted to a passion for show and money and the pleasures of an idle life, and accordingly either not marrying at all, or, if they did marry, refusing to rear the children that were born, or at most one or two out of a great number, for the sake of leaving them well off or bringing them up in extravagant luxury. For when there are only one or two sons, it is evident that, if war or pestilence carries off one, the houses must be left heirless: and, like swarms of bees, little by little the cities become sparsely inhabited and weak. On this subject there is no need to ask the gods how we are to be relieved from such a curse: for any one in the world will tell you that it is by the men themselves if possible changing their objects of ambition; or, if that cannot be done, by passing laws for the preservation of infants. On this subject there is no need of seers or prodigies.[6]

Somewhat later, Varro (116-27 B. C.), the Roman philosopher, published a treatise on farming entitled Rerum Rusticarum, in which he evidences unusual understanding of rural-urban differences. Speaking of the hardy rural women in contrast to the urban women, Varro comments

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[6] Ibid., pp. 510-511.

as follows:

> In many districts they are as good workers as men-a fact which you may observe everywhere in Illyricum where they can either shepherd the flock, or carry logs to the fire and cook the food, or look after the farm implements in the huts. As to the suckling of the young, I may mention that the mothers in nearly all cases suckle their own. And here, looking at me, he said: I have heard you say that when you went to Liburnia (Croatia) you saw there Liburnian house-wives carrying logs, and at the same time children, whom they were suckling; thus proving how feeble and contemptible are our modern newly-delivered mothers, who lie for days inside mosquito nets. True it is, I replied, and here is an even more striking illustration. In Illyricum it often happens that a pregnant woman when the time of delivery has come, retires a little distance from the scene of her work, is there delivered, and comes back with a child whom you would think she had found, not brought into the world.[7]

Better perhaps than anyone living previously, Ibn Khaldun understood[8] the principles of rural-urban Sociology. In his Prolegomenes, written late in the twelfth Century, the Arabian historian, statesman, and sociologist relates numerous differences between the rural, nomadic life and the sedentary life of cities. That the excess of births among rural peoples made possible the growth of cities was implicit to Ibn Khaldun's theory of change. In the following passage Khaldun indicates

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7 Varro, Varro on Farming- M. Terenti Varronis Rerum Rusticarum Libri Tres, translated by Lloyd Storr-Best (London: G. Bell and Sons, Ltd., 1912), pp. 228-230.

8 See Ibn Khaldun, "Les Prolegomenes d'Ibn Khaldun," Notices et extraits des manuscrits du roi, XIX(1862); XX (1865); XXI (1868); also Nathaniel Schmidt, Ibn Khaldun (New York: Columbia University Press, 1930), pp. 27-33.

a remarkably penetrating understanding of fertility and population problems.

> Rural life must precede that in cities; in fact, man thinks first of necessities, and he must procure these for himself before aspiring to a life of ease. The ruggedness of life in the country preceeded the refinements of settled life; we also note that civilization, born in the fields or country, terminates in the establishment of towns and has a definite tendency towards this end. As soon as the people of the country come to that stage of well being which makes them disposed to luxury, they seek the comforts of life and adopt a sedentary mode of living . . . Another fact also demonstrated that nomadic life preceeded a settled mode of living and gave birth to it. If we take the statements of the inhabitants of any city on this point, we will find that the most of them are descended from families which have lived in the villages of that vicinity or in the neighboring rural districts.[9]

If one were to search the literature, he would find abundant allusions to fertility differentials in writings not primarily concerned with population problems. Exemplifying this sort of incidental comment about fertility differences is the following citation from David Hume:

> Enormous cities are, besides, destructive to society, beget vice and disorder of all kinds, starve the remoter provinces, and even starve themselves, by the prices to which they raise all provisions. Where each man has his little house and field to himself, and each county has its capital, free and independent; what a happy situation of mankind! How favourable to industry and agriculture; to marriage and propagation![10]

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9 Quoted in Pitirim A. Sorokin, Carle C. Zimmerman, and Charles J. Galpin, A Systematic Source Book in Rural Sociology (Minneapolis: The University of Minnesota Press, 1930), I, p. 57.

10 David Hume, Essays Moral, Political, and Literary (London: Longmans, Green and Co., 1875), I, p. 398.

B. Early Statistical Data. During the latter part of the seventeenth century there arose in England a school whose followers came to be known as "Political Arithmeticians." Under the dicipline of this school, population and population problems came to be viewed objectively, through statistical counts and objective appraisals. The first impetus to the statistical approach to the study of population problems was provided by men like Graunt, Petty, and Halley.[11]

Perhaps more than any other man, Graunt may be called the founder of statistics. By applying statistics to population problems, he discovered the numerical regularity in marriage, birth and death rates, and the predictability of these phenomena. Although his data were crude and his conclusions sometimes in error, it was Graunt who wrote the introduction to the statistical approach to demography. In a treatise written in 1662, Graunt observes the smaller fertility in urban than in rural populations and gives as the reasons the following:

> . . . although in the Country the Christnings exceed the Burials, yet in London they do not. The general Reason of this must be, that in London the proportion of those subject to die unto those capable of breeding is greater than in the Countrey; that is, let there be an hundred Persons in London, and as many in the Country; we say, that if there be 60 of them Breeders in London, there are more then 60 in the Country, or else we must say, that London is more unhealthfull, or that it enclines men and women more to Barrenness, then the Country, which by comparing the Burials, and Christnings of Hackney, Newington, and the other Country-Parishes, with the most Smoaky, and Stinking parts of the City, is scarce discernable in any considerable degree.

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[11] Cf. Lancelot Hogben, Political Arithmetic (London: George Allen and Unwin Ltd., 1938), pp. 13-47.

Now that the Breeders in London are proportionally fewer then those in the Country arises from these reasons, viz.

1. All that have business to the Court of the King, or to the Courts of Justice, and all Country-men coming up to bring Provisions to the City, or to buy Foreign Commodities, Manufactures, and Rarities, do for the most part leave their Wives in the Country.
2. Persons coming to live in London out of curiosity, and pleasure, as also such as would retire, and live privately, do the same, if they have any.
3. Such, as come up to be cured of Diseases, do scarce use their Wives pro tempore.
4. That many Apprentices of London, who are bound seven, or nine years from Marriage, do often stay longer voluntarily.
5. That many Sea-men of London leave their Wives behind them, who are more subject to die in the absence of their Husbands, then to breed either without men, or with the use of many promiscuously.
6. As for unhealthiness it may be supposed, that although seasoned Bodies may, and do live near as long in London, as elsewhere, yet new-comers, and Children do not, for the Smoaks, Stinks, and close Air are less healthfull then that of the Country; otherwise why do sickly Persons remove into the Country Air? And why are there more old men in Countries then in London, per rata? And although the difference in Hackney, and Newington, above-mentioned, be not very notorious, yet the reason may be their vicinity to London, and that the Inhabitants are most such, whose bodies have first been impaired with the London Air, before they withdraw thither.
7. As to the causes of Barrenness in London, I say, that although there should be none extraordinary in the Native Air of the place, yet the intemperance in feeding, and especially the Adulteries and Fornications, supposed more frequent in London then elsewhere, do certainly hinder breeding. For a Woman, admitting 10 Men, is so far from having ten times as many Children, that she hath none at all.
8. Add to this, that the minds of men in London are more thoughtfull and full of business then in the Country, where their work is corporal Labour, and Exercises. All which [12] promote Breedings whereas Anxieties of the minde hinder it.

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12 John Graunt, Natural and Political Observations made upon the Bills of Mortality (Baltimore: The Johns Hopkins Press, 1939), pp. 54-56.

With Graunt's beginning, a whole school of British Political Arithmeticians sprang to life. Among these was Gregory King, who studied population phenomena with a great deal of thoroughness, using "Assessments on Marriages, Births and Burials, & the Collectors Returns thereupon, and by the Parish Registers."[13] King concluded that each marriage in London produced fewer children than in the country. King's conclusions, very similar to those of Graunt, were the following:

1. That tho' each marriage in London produceth fewer people than in the Country, Yet London in General Haveing a greater proportion of Breeders is more Prolifick than the other great Towns, and the great Towns are more Prolifick than the Country.
2. That if the People of London of all Ages were as long liv'd as those in the Country, London would Increase in People much faster Pro rato than the Country.
3. That the Reason why each marriage in London produces fewer children, than the Country Marriages, seems to Be,
    1. From the more frequent Fornications and Adulteries.
    2. From the Greater Luxury & Intemperance
    3. From a Greater Intensenesse or Businesse.
    4. From the Unhealthfullnesse of the Coal Smoak.
    5. From a greater Inequality of age Between the Husbands & Wives.[14]

Davenant, though accepting King's conclusions and figures almost verbatim, was an enthusiastic advocate of the statistical approach to problems of political economy. In his book, published in 1698,

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[13] Gregory King, Two Tracts: (a) Natural and Political Observations and Conclusions upon the State and Condition of England, (b) Of the Naval Trade of England A° 1688 and the National Profit then arising thereby (Baltimore: The Johns Hopkins Press, 1936), p. 27.

[14] Ibid., p. 28.

Davenant began with King's proposition that London marriages were less fertile and drew upon other computations, applying them to a study of public revenue. Not so much for his original work in the field of demography as such, but rather for the impetus given and applications made to the statistical method, Davenant should be remembered. The following brief passage represents his spirit:

> The Numbers of the People being suppos'd, by Returns made, it may be seen in what proportion Mankind Marry, are Born, or Die; and what proportion Batchelors and Widowers, hold with the rest of the People . . . By considering all these Points, and computing by Political Arithmetik, it may be laid down, That this Branch of the Publick Revenue, if it were under a good Management, without any Oppression to the Subject, might produce, per Annum, about 80,000 L.
>
> And it has hitherto yielded per Annum about 54,000 L.[15]

The rural-urban differential in rate of reproduction was also noted by Richard Price, another of the political arithmeticians. Writing in 1773, Price indicated that "healthfulness and prolificknessare . . . causes of increase seldom separated."[16] He also stated that "from comparing the births and weddings, in countries and towns where registers of them have been kept, that in the former, marriages,

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15 Charles Davenant, Discourses on the Publick Revenues, and on the Trade of England (London: Printed for James Knapton, at the Crown in St. Paul's Church-yard, 1698), pp. 115-116.

16 Richard Price, Observations on Reversionary Payments; on Schemes for Providing Annuities for Widows, and for Persons in Old Age; on The Method of Calculating the Values of Assurance on Lives; and on The National Debt (8th ed.; London: Printed for T. Cadell, in the Strand, 1773), p. 201.

one with another, seldom produce less than four children each; generally between four and five, and sometimes above five. But in towns seldom above four; generally between three and four; and sometimes under three."[17] Later, Price argued against the formation of great cities since he saw in them checks upon population growth. "Moderate towns," he argued, "being seats of refinement, emulation, and arts, may be public advantages. But great towns, long before they grew to half the bulk of London, become checks on population of too hurtful a nature, nurseries of debauchery and voluptuousness; and, in many respects, greater evils than can be compensated by any advantages."[18]

James Steuart,[19] whose collected works appeared in 1805, pointed out the rural-urban differential in number of births. He observed that the number of deaths exceeded the number of births in great cities, and that as a result smaller towns and the country were stripped of their inhabitants in order to furnish recruits for the large centers. The principal objections to great cities, as Steuart viewed them, were

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[17] Ibid., p. 201.

[18] Ibid., p. 205.

[19] Sir James Steuart, The Works, Political, Methphysical, and Chronological (London: Printed for T. Cadell and W. Davies, Strand, 1805), I, pp. 69-70.

unhealthfulness, fewer marriages, debauchery and abuses.

In his assorted discourses on agriculture, Arthur Young, as early as 1767, observed two differentials with respect to fertility of population. Whether Young performed original computations or whether he borrowed from the earlier Arithmeticians is not certain. The accuracy of his two observations cannot, however, be doubted. First, he noted that urban populations have lower rates of reproduction than rural populations, and second, that the poor, underprivileged reproduce more rapidly than the wealthy, privileged folk. Apropos of this, Young said:

> Population, taken in a general light, depends chiefly on the poor inhabitants of the country. Those of great cities, it is well known, are by no means so prolific— and the debauched, unhealthy lives that are generally led in them, is a terrible scourge to the human species. That there holds no proportion between the increase in London and the country, is a fact too well known to need a proof here.[20]

As early as 1751 in this country, Benjamin Franklin[21] made shrewd "Observations Concerning the Increase of Mankind, Peopling of Countries, etc." While influenced by Graunt and Petty, Franklin realized that generalizations based upon their observations would not be

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[20] Arthur Young, The Farmer's Letters to the People of England (London: Printed for W. Nicoll, at the Paper Mill, No. 51, in St. Paul's Church-yard, 1767), pp. 159-160.

[21] Benjamin Franklin, Political, Miscellaneous and Philosophical Pieces (London: Printed for J. Johnson, No. 72, St. Paul's Church-Yard, 1779). cf. especially pp. 3-11.

entirely applicable to a newly settled country. Not only did he note that cities rarely reproduced themselves, but also he anticipated Malthus.[22] Other pertinent portions of Franklin's Observations are:

> Tables of the proportion of marriages to births, of deaths to births, of marriages to the number of inhabitants, etc., formed on observations made upon the bills of mortality, christenings, etc. of populous cities, will not suit countries; nor will tables formed on observations made on full-settled old countries, as Europe, suit new countries, as America.
>
> For people increase in proportion to the number of marriages, and that is greater in proportion to the ease and convenience of supporting a family. When families can be easily supported, more persons marry, and earlier in life.
>
> In cities, where all trades, occupations, and offices are full, many delay marrying, till they can see how to bear the charges of a family; which charges are greater in cities, as luxury is more common; many live single during life, and continue servants to families, journeymen to traders, etc. Hence cities do not, by natural generation, supply themselves with inhabitants: the deaths are more than the births.[23]

Later Franklin explained the rapid growth of population in America in contrast to Europe:

> Land being thus plenty in America, and so cheap that a labouring man that understands husbandry, can, in a short time, save money enough to purchase a piece of new land, sufficient for a plantation, whereon he may subsist a family; such are not afraid to marry; for if they even look far enough forward to

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[22] Ibid., p. 9. The following statement made by Franklin sounds like a quotation from Malthus: "There is, in short, no bound to the prolific nature of plants or animals, but what is made by their crowding and interfering with each other's means of subsistence."

[23] Ibid., pp. 1-2.

> consider how their children, when grown up, are to be provided for, they see that more land is to be had at rates equally easy, all circumstances considered.
>
> Hence marriages in America are more general, and more generally early than in Europe. And if it is reckoned there that there is but one marriage per Annum among 100 persons, perhaps we may here reckon two; and if in Europe they have but four births to a marriage, (many of their marriages being late) we may here reckon eight; of which, if one half grow up, and our marriages are made, reckoning one with another, at twenty years of age, our people must at least be doubled every twenty years.[24]

Franklin lists a number of factors which cause a nation to decline in population. Among these are listed: "(1) The being conquered . . . (2) Loss of territory . . . (3) Loss of trade . . . (4) Loss of food . . . (5) Bad government and insecure property . . . (6) The introduction of slaves."[25] The reasoning with regard to slavery is particularly significant to the study of population differentials:

> The negroes brought into the English sugar-islands, have greatly diminished the Whites there; the poor are by this means deprived of employment, while a few families acquire vast estates, which they spend on foreign luxuries; and educating their children in the habit of those luxuries, the same income is needed for the support of one, that might have maintained one hundred. The whites who have slaves, not labouring, are enfeebled, and therefore not so generally prolific; the slaves being worked too hard, and ill fed, their constitutions are broken, and the deaths among them are more than the births; so that a continual supply is needed from Africa. The northern colonies having few slaves, increase in whites. Slaves also pejorate the families that use

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[24] Ibid., p. 3.

[25] Ibid., pp. 5-6.

> them; the white children become proud, disgusted with labour, and being educated in idleness, are rendered unfit to get a living by industry.[26]

With the appearance of Malthus' first essay on population in 1798, the empirical approach of the political arithmeticians was submerged for nearly a century by the controversy created by Malthusian doctrines. Contrary to the observed facts, Malthus elaborated a previously enunciated assumption that economic status is positively correlated with the birth rate.[27] Implicit to his view was the argument that population would increase in accordance with the economic potentialities of an area. This and other related speculations permeated the thinking of scholars for decades.

Malthus' essays on population made a great impression on Thomas Jefferson in America.[28] While his interest in population stemmed from his desire to initiate laws which would adjust land and resources to

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[26] Ibid., pp. 6-7.

[27] T. R. Malthus, An Essay on the Principle of Population (Reprinted from Last Revised Edition; London: Ward, Lock & Co., Ltd., 1890), p. 14. Two propositions which Malthus sought to prove were that "(1) Population is necessarily limited by the means of subsistence," and that "(2) Population invariably increases where the means of subsistence increase, unless prevented by some very powerful and obvious checks."

[28] Cf. Albert Ellery Bergh, The Writings of Thomas Jefferson (Washington, D. C.: The Thomas Jefferson Memorial Association, 1907), X, pp. 447-448.

population, Jefferson did make an original study of population growth in Virginia.[29] He presented data for the number of settlers imported, the number of inhabitants, and the number of "tythes" from 1607 to 1782. Perhaps due to the impact of Malthus' essays, Jefferson argued against a too rapid importation of foreigners in order to increase the population of the Colonies. Approaching the population questions from the standpoint of a legislator, Jefferson felt that the government is "more homogeneous, more peacable, more durable" if the population does not increase too rapidly.[30]

The work of George Tucker,[31] professor at the University of Virginia and one-time Congressman from that state, in the field of population is praiseworthy. The fact that Tucker studied birth trends in the earliest Censuses is of itself not especially notable. It is particularly significant to the study of population differentials, however, since he studied birth rates by relating the number of children under 10 to the total number of females. After accounting for selective migration, Tucker concludes that "the rate of increase of

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[29] Ibid., II, pp. 116-118.

[30] Ibid., II, pp. 118-121.

[31] George Tucker, Progress of the United States in Population and Wealth (New York: Press of Hunt's Merchants' Magazine, 1843).

the white population has diminished, on the average, between 1, and and 3/4 of 1 per cent, in ten years, and that the diminution has been in a slightly increasing ratio."[32] Contrary to Malthusian expectations, Tucker noted that "as the number of children bear a less and less proportion to the women, in every State of the Union, the preventive checks to redundant numbers have already begun to operate here, although there is no increased difficulty in obtaining the means of subsistence."[33]

Tucker also knew the effect of large cities and wealth upon the birth rate as indicated in the following passage:

> Without doubt, other checks to natural multiplication, these arising from prudence or pride, will continue to operate with increased force as our cities multiply in number and increase in magnitude, and as the wealthy class enlarges. These circumstances will have the effect of retarding marriage; and in the most densely peopled States, the fall in the price of labour, and consequently, the increased difficulty of providing for a family, may operate also on the poorer classes. It is even probable, that these checks operate sooner in this country than they have operated in other countries, by reason of the higher standard of comfort with which the American people start, and of that pride of personal independence which our political institutions so strongly cherish. The census shows that their influence has been felt ever since the first enumeration.[34]

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[32] Ibid., p. 93.

[33] Ibid., p. iii.

[34] Ibid., p. 103.

C. Mature Statistical Findings. Although it is impossible to set specific dates for the stages in the development of the study of fertility, one is impressed by the contrasting approaches to be found in the literature. Different rates of reproduction between two population groups are phenomena which are rather readily observable. But without statistical measures, the observer may frequently be misled. Lacking the now-common statistical devices it is not surprising, therefore, that the works of the early observers of fertility differentials were generally lacking in authority and assumed the form of opinion or commentary. The second phase may be said to have been initiated by John Graunt and the political arithmeticians, who applied elementary statistical techniques to the solution of demographic questions. Certainly the general method of this school cannot be considered faulty. Inadequate, incorrect, and incomplete basic data, coupled with the overwhelming speculation created by Malthus, however, prevented the empirical impetus of these men from attaining the maturity of more recent demographers.

It would seem advisable to review briefly the development of fertility studies within the latest stage. Since we are concerned primarily with the United States, the discussion will be restricted largely to this country. Although the use of the birth rate may be considered a forward step in the study of reproduction rates, it was only with the discovery of the fertility ratio that a relatively adequate device for measuring fertility differentials became available.

1. The Crude Birth Rate. In this country the study of births

and birth rates was ignored until about 1850.[35] According to Willcox this study, so far as the Census Bureau is concerned, has gone through two phases, the first covering the last half of the nineteenth century, and the second from 1915 to the present time. During the first period an effort was made to derive the number of births and the birth rate indirectly from census figures of children under one year old. During the last period, the aim has been to compile birth statistics by states and to publish them by the federal government.

Prior to 1915 when the birth registration area was established, information on births was restricted to incidental information secured during censal periods. In 1850 for the first time the Seventh Census obtained the number of children born during the preceeding year. This figure was corrected on the basis of a spot study in Rhode Island, giving a birth rate of 28.2. This rate, together with the accompanying information on births published by the Seventh Census was considered unreliable.[36]

In the Census of 1860, the subject of birth rates was ignored, but in 1870 an attempt was again made to determine the number of children under one year of age. A number of deficiencies were recognized and the data were not considered satisfactory. In 1880 and 1890,

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[35] Cf. Walter F. Willcox, Introduction to the Vital Statistics of the United States 1900 to 1930 (Washington, D. C.: Government Printing Office, 1933), p. 55; Walter F. Willcox, Studies in American Demography (Ithaca: Cornell University Press, 1940), pp. 264-266.

[36] Ibid., p. 55.

J. S. Billings was in charge of studying fertility. Although Billings himself considered the fertility data secured by the Tenth and Eleventh Censuses to be inaccurate and incomplete, he was certain at that time of the decline in fertility.[37] As to this view, he disagreed sharply with King, who considered the decline between 1880 and 1890 to be "more apparent than real."[38] Willcox, on the other hand, occupied an intermediate position in the controversy.[39]

Although the authorization to collect birth statistics was approved by the Census Act of 1902, the systematic collection of data bearing upon fertility did not start until 1915. At this time the birth registration area embraced 10 northeastern states. Gradually the other states were admitted so that by 1933 the birth registration area embraced all of the 48 states.

It may be surmised from these comments, therefore, that prior to 1915 information relating to the birth rate based upon census returns was limited. Knowledge of this vital process was further restricted

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37 John S. Billings, "The Diminishing Birth Rate in the United States," The Forum, IV (1893), 467-477.

38 William A. King, "The Decline in the Proportion of Children," Political Science Quarterly, XII (1897), 608-621.

39 Walter F. Willcox, "A Difficulty with American Census," Quarterly Journal of Economics, XIV (1900), 466-474. See also the argument of Allyn A. Young, "The Enumeration of Children," Publication of the American Statistical Association, VII (1901), 227-254.

by the well-known limitations of the crude birth rate itself as a measure of reproduction rates.

2. The Fertility Ratio. The deficiencies inherent in the crude birth rate were largely overcome with the discovery of the fertility ratio. Hogben attributes the discovery of the fertility ratio to Boekh, a German scholar, interested particularly in the study of divorce rates.[40]

In this country, Willcox was among the first to use the fertility ratio extensively in gauging the fertility of population. Due to the many difficulties encountered by the Census Bureau in gauging fertility based upon the number of children under one year of age, Willcox seized upon the fertility ratio in order to eliminate these difficulties. In 1900, as an employee of the Bureau of the Census, he began using the proportion of children under five years of age to women of child-bearing age in studying fertility.[41] A supplementary report to the Twelfth Census[42] was issued, making use of the fertility ratio in the

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[40] Hogben, op. cit., p. 34.

[41] Willcox, Introduction to the Vital Statistics of the United States, 1900 to 1910, p. 56 and Willcox, Studies in American Demography, p. 265.

[42] Twelfth Census of the United States, Special Reports, Supplementary Analysis and Derivative Tables (Washington; D. C.: Government Printing Office, 1906), pp. 405-437.

analysis of fertility by states and regions. A section of the introduction to this report seems especially relevant.

> Meantime in the present discussion another line of analysis has been followed. The increase of a population aside from immigration depends not merely on the number or proportion of infants annually contributed to recruit or swell the ranks of the population; it depends also on the number successfully reared. The enumeration of children under 5 years of age is admitted by everyone to be far more accurate and complete than the enumeration of children under 1 year of age. The proportion of children is thus an approximately accurate and a significant clue to the amount of new blood that is being brought into the country by nature's processes of reproduction and growth. Even if the enumeration of adults is substantially complete and that of children far from complete, no valid ground has been shown for believing that the per cent of omissions among children differs widely from census to census. Each census is organized more efficiently than the last and gathers its information from a better educated, less suspicious, and more friendly population. Hence, such omissions should and probably do tend to become relatively less frequent. In that case, the reported number of children would increase from census to census faster than the actual number, and the tendency of such a gradually disappearing error would be to mask rather than to exaggerate the real decline in the proportion of children.
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> It is a debatable question whether the population with which the number of children is compared should be the total population, the adult population, the women of child-bearing age, or the married women of child-bearing age. Each method has its advantages. The proportion to the total population can be computed for a longer period than any other and hence is better adapted for a preliminary survey of the general trend. But for most purposes a comparison with the number of women of child-bearing age seems the best. The number of married women of child-bearing age is known only for 1890 and 1900. Partly for this reason, partly because many of the influences tending to decrease the birth rate tend also to decrease marriages, and partly because limiting the comparison to married women excludes the influence of illegitimacy, the comparison between children and married women should be used only in a subsidiary way.[43]

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[43] Ibid., p. 408.

In the study of fertility in the United States, no name is more important, perhaps, than that of Warren S. Thompson, Director of the Scripps Foundation for Research in Population Problems. Based upon the 1920 Census, Thompson published a monograph making use of the fertility ratio.[44] This monograph represents the first comprehensive study of fertility differentials in the United States. In the introduction to the monograph, Thompson explains the nature and use of the fertility ratio as follows:

> It will be well to say a word here regarding the meaning and the uses of the ratio of children to women. It is by no means the same as the birth rate, although in communities of similar age and sex composition and having practically identical death rates, the ratio of children to women varies directly with the birth rate; that is, under given conditions, a community with a birth rate of 20 would have a ratio two-thirds that of a community having a birth rate of 30.
>
> The ratio of children under 5 to women 20 to 44 years of age is affected by three largely independent variables: (a) The specific birth rate; (b) the death rate of children under 5; and (c) the age distribution of the women within the group 20 to 44 years of age. The ratios of children to women could only be translated into terms of birth rates if the mortality of children under 5 were the same in all groups and if the age distributions of the women in the basic group were also the same. These ratios can, however, be used for comparative purposes if we bear in mind their limitations. What these ratios really measure is the effective reproduction of the different groups.[45]

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[44] Warren S. Thompson, Ratio of Children to Women, 1920, Census Monograph XI (Washington, D. C.: Government Printing Office, 1931).

[45] Ibid., pp. 16-17

The most ambitious report on differential fertility ever published by the Bureau of the Census[46] was issued in 1943. Data on the fertility of women 15 to 74 years old, based upon sample tabulations made by the Censuses of 1910 and 1940 are given. Women are classified by number of children ever born, number of children under 5 years of age, and number of children 5 to 9 years of age. Statistics giving age at marriage and duration of marriage are also presented. These data are available for the United States by regions and states, urban and rural; for cities of 250,000 or more; for metropolitan districts of cities of 1,000,000 or more; and for the urban and rural-nonfarm parts of these districts.

Another scholar of great importance for his studies of fertility is Robert R. Kuczynski, formerly of the Brookings Institution. His chief contributions are to be found in his methods of measuring fertility,[47] and his comprehensive studies of world fertility.[48]

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[46] Sixteenth Census of the United States, Population: Differential Fertility 1940 and 1910 (Washington, D. C.: Government Printing Office, 1943).

[47] Robert R. Kuczynski, Fertility and Reproduction (New York: Falcon Press, 1932). See also Robert R. Kuczynski, The Measurement of Population Growth: Methods and Results (New York: Oxford University Press, 1936).

[48] Robert R. Kuczynski, The Balance of Births and Deaths (New York: The Macmillan Company; Washington, D. C.: The Brookings Institution, 1928-1931), I, II. See also Robert R. Kuczynski, Birth Registration and Birth Statistics in Canada (Washington, D. C.: The Brookings Institution, 1930); Robert R. Kuczynski, Population Movements (London: Oxford University Press, 1936); Harris Foundation Lectures 1929, Population (Chicago: The University of Chicago Press, 1930), pp. 283-302.

In his books dealing with the methods of measuring rates of reproduction, Kuczynski has added some badly needed literature in the study of this problem. At the same time, this scholar has contributed much to our knowledge of reproduction rates throughout the world. His volumes on The Balance of Births and Deaths have done much to answer "in what countries of the world is population still amply reproducing itself," and "in what countries is the population ceasing to maintain itself?"[49]

Special note should also be taken of the fine work done by the Milbank Memorial Foundation in the field of birth rates and differential fertility. Under the leadership of numerous capable population students,[50] our knowledge of population differentials and trends have been materially advanced. Numerous of the studies conducted under the auspices of this foundation will be cited later under the appropriate headings.

Although it is not our purpose to be exhaustive, special note should be taken of several other scholars in the field of demography, especially of fertility. In addition to those considered above, noteworthy contributions have been made by Whelpton, Lorimer, Pearl, and

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[49] Kuczynski, The Balance of Births and Deaths, I, p. viii.

[50] Among the more prominent are Frank W. Notestein, Clyde V. Kiser, Edgar Sydenstricker, and Regine K. Stix.

Osborn.[51]

3. Differentials in Fertility. The past several decades have witnessed numerous studies of the phenomenon of differential fertility. Due to lack of data on the one hand, and man's inclination to jump to conclusions on the other, numerous fallacious ideas of differential rates of reproduction have arisen. Among the most spectacular is the belief that the American Negro is reproducing so fast that he shall in the not too distant future outnumber the white population. Sound studies have shown that this is not the case. As the result of research in population differentials, our knowledge of a number of principles has now been firmly established.

a. Residence. Because the mode of life is so different in urban and rural areas, residence as related to fertility was among the first factors to be investigated. For no other differential has the nature of the relationship been more clearly defined than has that between residence and fertility.

Precisely when in the course of history this differential came

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[51] In addition to the other writings of these men cited in this chapter, see Frank Lorimer and Frederick Osborn, Dynamics of Population (New York: The Macmillan Company, 1934); Frank Lorimer, Ellen Winston, and Louise K. Kiser, Foundations of American Population Policy (New York: Harper and Brothers, 1940); Raymond Pearl, The Biology of Population Growth (New York: Alfred Knopf, 1925); Warren S. Thompson and P. K. Whelpton, Population Trends in the United States (New York: McGraw-Hill Book Co., Inc., 1933); Warren S. Thompson and P. K. Whelpton, Estimates of Future Population of the United States 1940-2000 (Washington, D. C.: Government Printing Office, 1943).

about or whether it has existed from the time the first city was formed, is not known. The high rate of reproduction among rural peoples in comparison with urban residents in the United States is indicated in the earliest census data, in spite of certain inadequacies.[52] Jaffe demonstrated conclusively that relatively wide differentials in fertility have existed between urban and rural populations since 1800. The rural-urban differential in reproduction definitely existed as early as 1900 and 1910, as shown by Kiser in his analysis of the fertility rates of native-white women in the East North Central States.[53] In addition, he indicates that the trend in this decade for both rural and urban populations was declining.

> As early as 1900, the rural fertility rates were much higher than were those for the urban group. This was true for women of all ages but the differences were small among the younger wives. The accentuation of these differences with increasing age suggests the greater prevalence of large families in rural homes than in the homes of the city . . . whereas the urban rate declined considerably during the 1900-1910 interval, the change in the rural rate was less important . . . In 1900 the rural rate was 40 per cent higher than the urban rate; in 1910 it was about 51 per cent higher.[54]

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[52] A. J. Jaffe, "Differential Fertility in the White Population in Early America," The Journal of Heredity, XXXI (1940), 407-411.

[53] Clyde V. Kiser, "Trends in the Fertility of Social Classes from 1900 to 1910," Human Biology, V (1933), 256-273.

[54] Ibid., pp. 266-267.

An additional analysis of the Census of 1900 indicated that the rural wives were most fertile, village wives were second, residents of moderately urban centers were third, and Chicago wives were least fertile.[55]

In their study of the 1910 Census data for 69,620 native white married women under 45 years of age, Sydenstricker and Notestein came to the same conclusion with regard to rural-urban differentials. Each class in the rural population was found to be definitely more fertile than the urban population.[56]

In his monograph on the ratio of children to women, based upon 1920 Census returns, Thompson's chief conclusion was the depressing influence of urbanity upon the birth rate. Not only was the rural population found to be more fertile than the urban, but also it was concluded that fertility within the urban population decreased with increasing density of population. Thompson summarizes these differences as follows:

> It has been apparent from the outset of this study that urban living has a very depressing effect upon the birth rate.

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55 Clyde V. Kiser, "Fertility of Social Classes in Various Types of Communities of the East North Central States in 1900," Journal of the American Statistical Association, XXVII (1932), 371-382.

56 Edgar Sydenstricker and Frank W. Notestein, "Differential Fertility According to Social Class, a Study of 69,620 Native White Married Women Under 45 Years of Age Based Upon the United States Census Returns of 1910," Journal of the American Statistical Association, XXV (1930), 9-32.

> It would naturally be assumed in consequence that in proportion as the influence of urban living becomes greater and more pervasive, the ratio of children would show a decline. When we find, then, a fairly high degree of correspondence between the rurality of the State and the ratio of children in the native rural population, it would seem that we are justified in saying that the expectation has been fulfilled. We are also justified in concluding that the influence of the urban communities in a State does not stop at the cities' boundaries. Where a large part of the population of a State is rural, there the attitudes of mind and habits of life of the entire population tend to be those distinctive of rural dwellers; but where a large part of the population is urban, the attitudes of mind and habits of life characteristic of urban dwellers tend to permeate the entire community, at least as regards births. Even the rural population of a highly urbanized State has a lower ratio of children than in a more rural State.[57]

The essential tendency in fertility rates by residence are shown in the following summary table,[58] the data for which were assembled by Thompson.

In his study of fertility in Ohio, Beck points to the rural-urban differential as one of the most prominent. His discussion of this differential seems to be extremely appropriate here.

> It is evident from this study of birth and reproduction rates for 1930 that urban life as we know it is not conducive to child-bearing. Children are a luxury and a heavy financial responsibility to the average urban family. The cost of rearing children according to accepted standards has been rising. Families often have to choose between having another child and buying a new car or living in a more desirable neighborhood. It is a question of having 'things' or babies and many choose the former,

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57 Thompson, Ratio of Children to Women, 1920, p. 91.

58 Ibid., p. 177.

TABLE I

COMPARATIVE FERTILITY OF NATIVE-WHITE AND FOREIGN-BORN WHITE WOMEN, ACCORDING TO RESIDENCE, 1920

Nativity and Marital Condition	Children under 5 per 1000 Women 20-44 Years of Age				
	Cities				Rural districts
	100,000 inhabitants - over	25,000-100,000 inhabitants	10,000-25,000 inhabitants	2,500-10,000 inhabitants	
Native white Women:					
All women	341	390	434	477	721
Married, widowed, and divorced women	512	554	608	646	899
Foreign-born white women:					
All women	679	766	861	873	998
Married, widowed and divorced women	819	901	988	995	1,092

	25,000 inhabitants and over	2,500 to 25,000 inhabitants	Rural districts
Native white women:			
All women	355	459	721
Married, widowed, and divorced women	525	630	899
Foreign-born white women:			
All women	697	867	998
Married, widowed, and divorced women	836	991	1,092

> judging from the downward trend in the number of births. To the extent that urban culture, with its gadgets and standards, has invaded the rural hinterlands of our large cities the rural birth rate, too, has declined.
>
> Two things are necessary for urban influences to spread into the outlying rural areas--easy communication and time. The automobile and all-year roads have intensified rural-urban contacts. The automobile is a very recent development and our State system of good roads still more recent. The automobile and good roads have aided in urbanizing the country in two ways: (a) by giving the rural dweller more frequent contact with the city and (b) by making possible rural residence for city workers . . .[59]

Though implied in numerous studies, it was found on the basis of research done by the Scripps Foundation for Research in Population Problems in cooperation with the Urbanism Committee of the National Resources Committee[60] that fertility tends to increase gradually as distance from a large center increases. Township data were used for areas extending outward from 16 large cities scattered throughout the United States. Only the rural population was considered and fertility was measured by the proportion of children under 5 to 1,000 persons 15 to 44. Although not conclusive, the report summarizes the findings by indicating that "distance is highly significant in 5 areas, significant in 4 areas, and of no significance in 7 areas"[61] when the influence

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59 P. G. Beck, Recent Trends in the Rural Population of Ohio (Columbus: Ohio Agricultural Experiment Station Bulletin 533, 1934), p.27.

60 National Resources Committee, Population Statistics, Urban Data (Washington, D. C.: Government Printing Office, 1937).

61 Ibid., p. 23.

of related variables were controlled.[62] Whelpton reports that as distance increases away from city, fertility does not always increase.

That the rural-urban differential in fertility appears to be a world-wide phenomenon seems to be a truism. One study of differential fertility for Sweden[63] will be cited in this connection, although the findings for numerous other countries seem to indicate the same relationship.[64] The data for the rural population in selected counties in 1930 and 1931 were classified into four groups according to degree of rurality. The measure of fertility used in this study was the "average number of confinements per annum per thousand married women of child-bearing age." Among the principal observations was that fertility decreases steadily from "the more rural to the more urban communities."[65]

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62 P. K. Whelpton, "Geographic and Economic Differentials in Fertility," Annals of the American Academy of Political and Social Science, CLXXXVIII (1936), 37-55.

63 Karl Arvid Edin and Edward P. Hutchinson, Studies of Differential Fertility in Sweden (London: P. S. King and Son, Ltd., 1935).

64 See for example Warren S. Thompson, Population Problems (3rd ed.; New York: McGraw-Hill Book Company, 1942), pp. 179-184; also Pitirim Sorokin and Carle C. Zimmerman, Principles of Rural-Urban Sociology (New York: Henry Holt and Company, 1929), pp. 205-220.

65 Edin and Hutchinson, op. cit., p. 43.

Numerous studies have been made of geographic differences in the United States. Since regional differentials are so greatly influenced by degree of rurality, racial composition, and other characteristics to be reviewed later, such literature will not be dealt with separately here. Note should be taken, however, of excellent references on the subject.[66]

With regard to residential differentials in fertility, it is now well established that fertility varies inversely with population density. Thus, rural-farm populations are more fertile than rural-nonfarm, and the rural-nonfarm segments, in turn, are more fertile than the urban. Furthermore, within the urban population, birth rates decline as the size of the population aggregate increases. A corollary to these principles is the tendency for birth rates to increase progressively as distance outward from a large urban center increases.

b. Race and Nativity. A number of studies have attempted to investigate fertility differentials as related to race and nativity groups. Although differentials have been found, interpretations have been characterized by a certain hesitancy and uncertainty. It is our intention

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66 National Resources Committee, The Problems of a Changing Population (Washington, D. C.: Government Printing Office, 1938), pp. 119-138; Rupert B. Vance, "The Regional Approach to the Study of High Fertility," Milbank Memorial Fund Quarterly, XIX (1941), 356-374; Katherine Berry, "Differential Fertility According to Geographic Areas in the United States," Milbank Memorial Fund Quarterly, IX (1931), 78-94; Alfred J. Lotka, "The Geographic Distribution of Intrinsic Natural Increase in the United States, and an Examination of the Relation Between Several Measures of Net Reproductivity," Journal of the American Statistical Association, XXXI (1936), 273-294; and Warren S. Thompson, "Size of Families from Which College Students Come," Journal of the American Statistical Association, XX (1925), 481-495.

in this section to review some of the outstanding work done in the field of racial and nativity differentials.

In his monograph based upon census returns for 1920, Thompson indicates that for Negroes rates are not consistently higher than those of whites in all residence groups. Using as his index of fertility the ratio of the number of children under 5 per 1000 women aged 20 to 44, he sums up his findings as follows:

> In the South, except in the cities, the ratio of children to Negro women is probably greater than among the white women, but in the North this is not the case, except possibly in the rural population of a few states. In the cities, both in the North and the South, the Negroes have much smaller ratios of children than the whites, even when due allowance is made for omissions. City life seems to have an even more depressing effect on the Negro birth rate than on that of the whites.[67]

"The ratios of children to Negro women," Thompson says, "show nothing essentially different from those of native white women."[68] The contrast between urban and rural ratios for the two races are in the same direction, being somewhat more marked for the Negroes. Negro rates in urban centers were found to be unusually low.[69]

The National Resources Committee report summarizes the differentials between native white women, foreign-born white women, and Negro

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67 Thompson, Ratio of Children to Women, 1930. p. 145.

68 Ibid., p. 182.

69 Ibid., pp. 141-154.

women for the years 1910, 1920, and 1930, according to size of community. Table II indicates that foreign-born urban and rural residents for all three periods have the highest ratios. Urban Negroes for the three periods have fertility rates below those for native whites, while rural Negroes have higher fertility ratios than the native whites. These findings are summarized in the following table.[70]

On the basis of the 1930 Census, a report made by the National Resources Committee indicated that "urban residence reduces the fertility of Negroes about 10 per cent more than that of native whites."[71]

In a special tabulation of the 1930 Census for the East North Central states, Notestein found that among Negroes rates were lower than those of either native whites or foreign-born whites. In each size of community (except the rural-farm Negro group which was small) the mean number of children was lowest for Negroes, intermediate for native whites, and highest for foreign-born whites. The color-nativity differentials were largest in the large cities and decreased rapidly with declining size of community. The lower average fertility of Negroes Notestein attributed to the high proportion of childless Negro families.[72]

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[70] National Resources Committee, Population Statistics, Urban Data, p. 21.

[71] National Resources Committee, Problems of a Changing Population, p. 134.

[72] Frank W. Notestein, "Differential Fertility in the East North Central States," Milbank Memorial Fund Quarterly, XVI (1938), 173-191.

TABLE II

COMPARATIVE FERTILITY* OF NATIVE-WHITE, FOREIGN-BORN WHITE, AND NEGRO WOMEN, ACCORDING TO RESIDENCE, 1910-1930

Size of Community	1930			1920			1910		
	White women		Negro women	White women		Negro women	White women		Negro women
	Native	Foreign		Native	Foreign		Native	Foreign	
United States	499	548	554	555	838	608	594	785	736
100,000-over	337	479	335	350	725	287	350	680	297
25,000-100,000	390	550	355	403	819	327	395	726	338
10,000-25,000	430	630	394	449	928	377	434	787	415
2,500-10,000	462	631	413	495	946	414	486	833	498
Urban	380	513	355	399	778	327	399	713	365
Rural	683	770	788	745	1100	826	779	1051	950
Nonfarm	609	690	605	647	1059	607	-	-	-
Farm	752	925	885	815	1168	918	-	-	-

* Children under 5 adjusted for underenumeration, per 1,000 women 20-44, and standardized to the age distribution of women.

In a study of fertility in 1,703 families living in the open country of five North Carolina counties, Hamilton and York found the fertility rates of Negro women to be higher than those for whites. Though fertility rates for colored women were consistently higher than those for white women in the period covered, the differences have not been so great in recent years. The Negro rate appeared to lag in its decline by about 5 years.[73]

In his study of 1,345 families in Logan county, West Virginia, Beebe[74] obtained fertility data in connection with a contraceptive service. The number of live births per year of married life for the interview sample was found to be significantly higher for the whites than the Negroes at all ages. Differences were slight for the contraceptive sample, with the Negroes being somewhat more fertile, especially at earlier ages.

Pearl concluded on the basis of two different studies[75] that

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[73] C. Horace Hamilton and Marguerite York, "Trends in the Fertility of Married Women of Different Social Groups in Certain Rural Areas of North Carolina," Rural Sociology, II (1937), 192-203.

[74] Gilbert Wheeler Beebe, Contraception and Fertility in the Southern Appalachians (Baltimore: The Williams and Wilkins Company, 1942), p. 110. See also Gilbert Wheeler Beebe, "Differential Fertility by Color for Coal Miners in Logan County, West Virginia," Milbank Memorial Fund Quarterly, XIX (1941), 189-195.

[75] Raymond Pearl, "Some Data on Fertility and Economic Status," Human Biology, IV (1932), 525-553; and Raymond Pearl, "Contraception and Fertility in 2,000 Women," Human Biology, IV (1932), 363-407.

Negroes were somewhat more fertile than whites. One sample consisted of 728 cases, data for which were secured through the Bureau of Contraceptive Advice in Baltimore from 1927-1931. The Negro women in this study, Pearl concluded, were clearly more efficient reproductive mechanisms than the white women when considered from the standpoint of pregnancy rate, birth rate, and reproductive wastage rate.[76] The second sample included 2,000 cases, data for which were collected through co-operating hospitals in five large northern cities. Pearl concludes "there is a remarkably close agreement between the white and Negro groups in respect to the relative (percentage) frequency of women who have experienced the various number of pregnancies. While there is a systematic difference between the two curves in the direction of higher fertility in the Negroes, the difference is not as great as perhaps might have been expected."[77]

The results obtained by Kiser[78] who analysed the fertility data of the National Health Survey conducted in the Fall and Winter of 1935-1936, should be related here. Exclusive of census data this sample is the largest ever collected in the study of birth rates, embracing 703,092

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[76] Ibid., "Some Data on Fertility and Economic Status," pp. 552-553.

[77] Ibid., "Contraception and Fertility in 2,000 Women," p. 393.

[78] Clyde V. Kiser, Group Differences in Urban Fertility (Baltimore: The Williams and Wilkins Company, 1942).

households in 83 cities located in 18 states.

In his analysis of marital fertility rates by nativity and color, Kiser emphasizes two situations. "One is that the fertility rates of foreign-white married women are now only a little above those for native-white married women comparable with respect to age and urban residence. The other is that, although crude birth rates tended to be higher among colored than among white populations, the opposite situation tended to prevail when the analysis was restricted to married women of childbearing age."[79] The standardized marital fertility rates, except on the Pacific Coast where Mexicans and yellow races were relatively important, were lower than among native-white wives. This held true even after corrections were made for underenumeration of births.

With respect to differences in the fertility of foreign-born and native-white women, the view presented by Carpenter in his census monograph[80] seems to be sound sociologically. According to this report:

> . . . to the extent that differences in the birth rates of native and foreign-born mothers are assignable to such causes as earlier marriage, lower economic status, and inability or unwillingness to use contraceptive procedures, these differences

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[79] Ibid., p. 30.

[80] Niles Carpenter, Immigrants and Their Children 1920, Census Monograph VII (Washington, D. C.: Government Printing Office, 1927), pp. 178-210.

> would be expected to fade out after two or three generations, as the descendants of the present generation of foreign-born mothers gradually merge, economically and culturally, with the general population. And, until evidence is forthcoming which establishes the existence of inherent biological difference in child-bearing capacities between the stocks represented by the native and foreign-born mothers, respectively, it must be assumed that such differences in this respect as exist today between these two groups are, at least in large measure, due to such non-biological factors as have just been mentioned, and are, consequently, likely in time to be appreciably diminished.[81]

Differentials in fertility by race and nativity indicate little, if any, difference in fertility of Negroes and whites when precisely comparable residential groups are compared. Negroes tend to be somewhat less fertile in urban areas but more fertile in rural-farm areas than whites. Although diminishing very rapidly in importance in the population of the United States, foreign-born whites are more fertile than native-born elements.

c. Religion. Comparatively few studies have attempted to relate fertility to religion, probably due in large part to the fact that ethnic origin and economic status are so frequently linked with the religious factor. Investigations completed to date, however, are unanimous in attributing higher fertility to Catholics than non-Catholics. Other religious groups have been largely ignored, with the possible exception of the Jewish group. The indications seem to be that this group is less fertile than either Catholics or Protestants.

Among the best studies of the religious factor are those made

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81 Ibid., pp. 189-190.

by Stouffer.[82] In one study he traces the fertility of 40,766 Wisconsin families married between 1919 and 1930 to December 31, 1933. The confinement rate for Catholic families was found to be higher than that for non-Catholic families in "Milwaukee and Suburbs" and in "other Wisconsin cities" and in the "first 3½-years of marriage," the "second 3½-years of marriage," and the first 7 years of marriage in all classifications. Although the rates for Catholics were higher both at the beginning and end of the period, fertility for this group declined more rapidly than that for non-Catholics, 14 per cent, as compared with 11 per cent during the period.[83]

In his study of fertility of families on relief, Stouffer used "Catholic and non-Catholic" as one of his fundamental breakdowns. The results of this study apply to over 5,000 relief families in Milwaukee and suburbs. It was found that the fertility of couples married by a Catholic priest was higher in every sub-group than that for corresponding couples not married by a priest. A portion from a table used by Stouffer appears below.[84]

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[82] Samuel A. Stouffer, "Trends in the Fertility of Catholics and Non-Catholics," The American Journal of Sociology, XLI (1935), 143-146; See also Samuel A. Stouffer, "Fertility of Families on Relief," Journal of the American Statistical Association, XXIX (1934), 295-300.

[83] Ibid., "Trends in the Fertility of Catholics and Non-Catholics."

[84] Ibid., "Fertility of Families on Relief," p. 296.

TABLE III

COMPARATIVE FERTILITY OF CATHOLIC AND NON-CATHOLIC FAMILIES, ACCORDING TO OCCUPATIONAL CLASS AND RELIEF STATUS

Occupational Class and Religion of Husband	Relief Families		Non-Relief Families	
	Number of Confinements	Number of Confinements per 1000 Months of Exposure	Number of Confinements	Number of Confinements per 1000 Months of Exposure
Clerical Workers				
Catholic	39	9.2	27	6.0
Non-Catholic	61	8.3	46	5.9
Skilled Workers				
Catholic	212	9.4	194	8.4
Non-Catholic	246	8.9	164	5.6
Semi-Skilled and Unskilled				
Catholic	282	11.0	225	8.4
Non-Catholic	382	10.9	248	6.6

In general agreement with Stouffer's work are two additional studies. The Catholic birth rate is becoming more like the Protestant birth rate due to the passing of large immigrant groups out of the childbearing ages, especially Polish and Italian groups.[85] Jaffe, however, concluded that Catholicism may have been a factor tending to raise birth rates prior to 1930, but that Catholic birth rates have been decreasing so rapidly that by 1930 their fertility was close to that of non-Catholics. He further concluded that Jewish net reproduction

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[85] Gilbert Kelly Robinson, "The Catholic Birth Rate: Further Facts and Implications," The American Journal of Sociology, XLI (1936), 757-766.

rates were somewhat lower than those for Protestant groups of comparable status.[86]

Data collected by Holmes from the records of University of California freshmen indicate that the average size of family where both parents were Catholic was considerably larger than where both parents were Protestant. The average number of children per family was as follows:[87]

Father and Mother Protestant	3.48
Father and Mother Catholic	4.44
Father Protestant, Mother Catholic	3.16
Father Catholic, Mother Protestant	3.00

Differences in fertility by religious preference was secured as an incidental part of a study of clinical contraceptive patients reported by Stix and Notestein. Complete records were obtained for 991 women, of whom 67 per cent were Jewish, 17 per cent were Catholic, and 9 per cent were Protestant.

> There were clear-cut differences in the pregnancy rates of the various occupational and religious groups when contraception was used . . . Pregnancy rates for experience with contraception were highest for Catholics, intermediate for Protestants, and lowest for Jews; and, except for the first pregnancy

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[86] A. J. Jaffe, "Religious Differentials in the Net Reproduction Rate," Journal of the American Statistical Association, XXXIV (1939), 335-342.

[87] S. J. Holmes, "The Size of College Families," The Journal of Heredity, XV (1924), 407-415.

where the experience was small, the relation holds for each occupational group.[88]

Perhaps the clearest case of religion and its influence upon the birth rate to be found in Census materials is that of Mormonism. ". . . the difference in ratios of children to native white women between Utah and her neighbors can only be explained as resulting from the attitudes of mind inculcated by the Mormon religion."[89]

The studies of the religious factor in relation to fertility, therefore, seem to prove that religion is important in inculcating attitudes favorable to large families. Catholics and Mormons appear to be more fertile than Protestants, while Jews appear to be the least fertile.

d. Occupation, Economic and Social Status. Implicit to the theory of Malthus was the idea that population would increase in accordance with the capabilities of an area to produce food. Thus, Malthus inferred a positive association between fertility and economic status. In all probability, it is due to the tremendous influence exerted by Malthus that the now-accepted inverse association between fertility and socio-economic status was so slow in becoming established.

One of the earliest studies relating fertility to the relative

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[88] Regine K. Stix and Frank W. Notestein, Controlled Fertility (Baltimore: The Williams and Wilkins Company, 1940), pp. 49-51.

[89] Thompson, Ratio of Children to Women, 1920. p. 136.

"ease" of a population was made by Bertillon in France.[90] Bertillon classified the sections of the cities of Paris, Berlin, Vienna, and London according to socio-economic circumstances, and then computed the number of births per 1,000 women aged 15 to 50. His chief conclusion was that in all cities births increased from the very rich to the very poor quarters.

In this country, Notestein observed that the "more rapid increase in the lower than in the upper classes goes back well into the 19th century . . ."[91] In a recent study Jaffe[92] supplied evidence that the inverse relationship between fertility and economic class extended back to 1800, the earliest date for which data were available.

In a large sample, 69,620 native white married women under 45, based upon census returns for 1910, a definite and consistent inverse relation between fertility and the ranking of the broad social classes was found. In the urban sample, it was found that fertility decreased from a high among unskilled workers to a low among the professional group. Skilled workers ranked next to the unskilled group and business

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90 Jacques Bertillon, "La Natalite selon de degre d'aisance. Etude, a ce point de vue, de Paris, Londres, Berlin et Vienne," Bulletin de l'institut international de statistique, XI (1899), 163-176.

91 Frank W. Notestein, "The Differential Rate of Increase Among the Social Classes of the American Population," Social Forces, XII (1933), p. 32.

92 Jaffe, "Differential Fertility in the White Population in Early America."

next to the professional group. The difference in fertility was found to be less between the professional and business groups than between the other urban classes.[93]

Although using a more refined occupational classification, Pearl arrived at essentially the same conclusion as did Sydenstricker in a study of data from the Census Bureau Birth Statistics for 1923.[94] Pearl reclassified the occupational breakdowns and related them to fertility. The average number of children produced by a mother of 1923 in her total reproductive life and whose father fell into the professional class and was 45 years old or over in 1923 was taken as 1.00. His ranking according to relative fertility is presented in Table IV.

The conclusion of this author deserves quotation in full:

> Summing the whole case up it appears that the great laboring groups, Manufacturing, Agriculture, and Mining, not only have a higher proportion of more fertile families per unit of population so occupied, than do the other occupational groups, but also they have a much larger average number of children per family. Put it another way the case comes to this: Professional, Clerical, Trade, Domestic and Personal Service, Public Service, and Transportation occupational classes are reproducing themselves in such a manner as not to maintain in quite its present status their relative representation in the population. But the heavy laboring classes, Manufacturing, Agriculture, and Mining are reproducing

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93 Sydenstricker and Notestein, "Differential Fertility According to Social Class," pp. 9-32.

94 Raymond Pearl, "Differential Fertility," The Quarterly Review of Biology," II (1927), 102-118.

themselves in excess of their representation in the population. From this excess must necessarily be supplied the deficiencies in the first six classes in the next generation, if these classes are to maintain about the same representation in the total population that they exhibit in the present generation.[95]

TABLE IV

RELATIVE AVERAGE SIZE OF FAMILY, ACCORDING TO OCCUPATIONAL CLASS[96]

Professional Service	1.00
Clerical Occupations	1.02
Trade	1.23
Domestic and Personal Service	1.27
Public Service	1.31
Transportation	1.44
Manufacturing and Mechanical Industries	1.58
Agriculture, Forestry, and Animal Industry	1.62
Extraction of Minerals	1.90

Although limited to approximating the relative prolificacy of the several occupational groups, Thompson is in essential agreement as indicated in his Census Monograph XI. He emphasizes the fact that manufacturing cities have higher ratios than those engaged chiefly in trade and commerce. Where centers furnish professional services to a large degree, reproduction rates are relatively low.[97]

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95 Ibid., p. 112.

96 Ibid., p. 107

97 Thompson, Ratio of Children to Women, 1920. See especially pp. 48-56.

Based upon census data, Ogburn and Tibbitts claim that "statistics of the number of children ever born to mothers of a particular year are so highly correlated with birth rates in the larger occupation groups that they may be used as indexes of the birth rates."[98] Except for a reversal of the professional and clerical groups at the lower end of the scale, and for slighter differences among the transportation, public service, and domestic and personal service groups, Ogburn and Tibbitts agree with Pearl.

While studies of occupational class in England[99] seem to substantiate the inverse association with fertility, the situation in this regard appears to be reversed in Sweden.[100]

In 1938, research in urban occupational differentials with respect to fertility was sufficiently advanced to lead Vance to voice the following: "Four urban classes - professional, business skilled, and unskilled workers - fall into three fertility groups, with little difference between professional and business classes which rank lowest. The skilled class comes next, with the unskilled

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98 W. F. Ogburn and Clark Tibbitts, "Birth Rates and Social Classes," Social Forces, VIII (1929), 1-10.

99 Cf. J. W. Innes, "Class Birth Rates in England and Wales, 1921-1931," Milbank Memorial Fund Quarterly, XIX (1941), 72-96; Christopher Tietze, "Differential Reproduction in England," Milbank Memorial Fund Quarterly, XVII (1939), 288-293.

100 Edin and Hutchinson, op. cit., pp. 56-62.

workers ranking as the most fertile."[101]

The suggestion that this differential is not new is reinforced by Kiser, who studied occupational class differentials in the East North Central States based upon census data for 1900 and 1910.[102] He points out that in 1900 the birth rates of the urban residents were much more clearly differentiated by social class than were those of the rural residents. Indicating precisely the differential which Vance mentioned in 1938, Kiser says that the four urban classes fell into three fertility groups since there was little difference between the rates among professional and business classes. The white collar group was lowest in fertility, skilled workers intermediate, and the unskilled laborers were the most fertile urban dwellers. By 1910 the professional class became slightly dissociated from the business group but still the difference remained relatively slight.

The fertility information obtained through the United States Public Health Service in 1935-1936 and analyzed by Kiser, indicates that the business class had replaced the professional class as the

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[101] Rupert B. Vance, Research Memorandum on Population Redistribution Within the United States (New York: Social Science Research Council, Bulletin 42, 1938), p. 37.

[102] Kiser, "Trends in the Fertility of Social Classes from 1900 to 1910," pp. 256-273. See also the study by Frank W. Notestein, "The Decrease in Size of Families from 1890 to 1910," Milbank Memorial Fund Quarterly, IX (1931), 181-188.

least fertile group. Prior to the publication of the completed fertility study, Kiser found an inverse relationship between birth rates and occupational class except for a reversal of the business and professional groups in a five-city sample. These data included 16,831 women 15 to 44 years of age in the cities of Oakland, Newark, Grand Rapids, St. Paul, and Fall River.[103] Later, when the entire sample embracing all of the 84 cities was analyzed, the same conclusion was reached. Kiser's conclusion with regard to the association between fertility and occupational status is as follows:

> With respect to variations in fertility, the point of chief interest revealed by the data for the native-white wives was the apparent emergence of an exception to the traditional inverse association between occupational status and fertility. The distinction of lowest average rate of marital fertility appears to have passed from the professional to the business class. Otherwise, the inverse relation was manifested. Described by age, the chief differentials in fertility along occupational lines were found among wives under 25. The analysis by area and size of community appeared to confirm the trend toward diminishing variations by occupational class in the fertility of urban native-white married women. This trend appears to have progressed furthest in the cities of the Pacific Coast. All occupational classes of urban native-white wives in that area were characterized by low fertility rates.
>
> As to the foreign-white wives, the combined data yielded an average picture of inverse relation between marital fertility and occupational status. Wide variations in the character of this relationship, however, were found in the sub-divisions of the sample by area and size of community. Whatever the real situation may be, foreign-born women are rapidly passing out of the child-bearing span, so their importance from a population point of view is diminishing.

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[103] Clyde V. Kiser, "Variations in Birth Rates According to Occupational Status, Family Income, and Educational Attainment," Milbank Memorial Fund Quarterly, XVI (1938), 39-56.

> For the combined sample of colored wives of childbearing age, the analysis indicated a faintly discernible inverse relation of birth rates with occupational class of the head. Ninety per cent of the group fell into the two laboring classes, skilled and unskilled, however; and there appeared to be little in the way of consistent or marked differences between the two predominant classes with respect to fertility.[104]

In his thorough-going study of fertility in Butler county, Ohio, Thompson found that the employment of women had a depressing influence upon the average number of children born.[105]

In the rural segment of the population as well, the inverse association between fertility and occupational status appears to be true. On the basis of data taken from 1900 and 1910 Censuses and limited to women of childbearing age living in the East North Central states, Kiser says that "a differentiation of the three rural classes was at least beginning to be manifested by 1900."[106] By 1910 there was increasing differentiation between the classes in the rural population. At all ages and especially among women 25 years of age and over, the

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104 Kiser, Group Differentials in Urban Fertility, pp. 77-78. See also a preliminary report by Clyde V. Kiser, "Birth Rates and Socio-Economic Attributes in 1935," Milbank Memorial Fund Quarterly, XVIII (1939), 128-151.

105 Warren S. Thompson, Average Number of Children Per Woman in Butler County, Ohio: 1930 (Washington, D. C.: Bureau of the Census, 1941), pp. 52-54. For a summary of the findings of this study see pp. 7-13.

106 Kiser, "Trends in the Fertility of Social Classes from 1900 to 1910," p. 270.

age specific rates for the farm laborers were higher than those for farm renters and farm owners. The age specific rates for the farm owners and farm renters were nearly the same for women under 35 years of age, but among women 35 and over the rates for farm owners were much lower.

Sydenstricker, in a study based upon 1910 Census data, confirms the inverse association between occupational class in the rural population and fertility. He finds that all rural classes (owners, renters, and laborers) are much more fertile than any urban class and that the differentiation between the rural classes is relatively slight.[107]

In a study of 1,703 families living in the open-country of five North Carolina counties, Hamilton and York found that the fertility of owners' wives was significantly lower than that for non-owners' wives. Sharecroppers had higher rates than tenants or farm laborers among the non-owner group.[108]

A more recent study made by Sewell in Oklahoma indicated that the owner group was significantly less fertile than the non-owner group. The croppers and laborers, which were grouped in this study, were only slightly more fertile than the tenants. The tenants, however, were

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[107] Sydenstricker and Notestein, "Differential Fertility According to Social Class," p. 25.

[108] Hamilton and York, op. cit., pp. 199-202.

decidedly more fertile than the owners.[109]

Perhaps the best summary of our present knowledge of the association between fertility and rural occupational classes is given by Vance. He points out that "the rates for farm groups are not so divergent but a differentiation is apparent with owners lowest, renters next, and farm laborers with the highest fertility. Of all urban classes only unskilled laborers approached the fertility of rural groups."[110]

A review of the evidence indicating the association between fertility and income remains to be outlined. There seems to be no doubt that fertility rates in this country are highest where incomes are lowest. Evidence of this fact may be found on a large scale in this country when "from poorest to richest regions, natural increase progressively declines," and "for the nation and for each region the ratio of children to women decreased from poor to prosperous areas."[111]

Winston found a correlation of $-.86 \pm .03$ when correlating per

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[109] William H. Sewell, "Differential Fertility in Completed Oklahoma Farm Families," American Sociological Review, IX (1944), 427-434.

[110] Vance, Research Memoranda on Population Redistribution Within the United States, p. 37.

[111] Ibid., pp. 34-45.

capita current income for each state with the number of children under 15 per native white women ever married between the ages 15 and 54. This would indicate a high degree of correlation between the two variables.[112]

The data from the Health Survey indicated an inverse relationship between income and marital fertility rates. Within each of the nativity-color groups in the survey, there was a "broad inverse association of income and marital fertility rates."[113] Among native whites, this inverse association did not extend into the upper income brackets. Variations in fertility with increased income were greatest at youngest ages, and apart from the highest rates for wives reporting under $1,000 on relief, there were only minor variations after the age of 25 or 30. Among foreign-born wives, the standardized birth rates consistently decreased with rising income. In the analysis by area and size of city, the consistent inverse relation, however, was found only for the large eastern cities. Although there was a heavy proportion of Negroes in the lowest income brackets, there was a strikingly sharp inverse relation between income and fertility among the Negroes. There was also a greater persistence of this inverse

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[112] Sanford R. Winston, "The Relation of Certain Social Factors to Fertility," American Journal of Sociology, XXXV (1930), 753-764.

[113] Kiser, Group Differentials in Urban Fertility, p. 143.

relationship into the older age groups among Negroes than among the native whites.[114]

Studies of relief and non-relief clients[115] show the lower income, relief clients to be more fertile than non-relief clients. Rates for the North Carolina relief clients were found to be slightly higher than the non-relief clients, although differences were not significant. Sewell, on the other hand, found that the relief group in his sample was significantly more fertile than the non-relief group. Griffin and Perrot, on the basis of data secured for middle class urban workers in eight cities found that relief families had higher average birth rates than non-relief families. After four years of depression, birth rate differentials were similar to those existing prior to the depression. Thus, the authors conclude that "family limitation is probably a social custom rather than an economic expedient."[116]

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[114] Ibid., pp. 77-78. Cf., Kiser, "Variations in Birth Rate According to Occupational Status, Family Income and Educational Attainment," p. 56. In a sample of 5 cities in the Health Survey, birth rates among lowest income groups and relief recipients were markedly high and the rate, unexpectedly, for the highest group ($3000 or more) was higher than that for the two successive lower brackets earning $2000-$2999 and $1500-$1999.

[115] Sewell, op. cit., p. 430; Hamilton and York, op. cit., pp. 197-199.

[116] Helen C. Griffin and G. St. J. Perrott, "Urban Differential Fertility During the Depression," Milbank Memorial Fund Quarterly, XV (1937), 89.

Birth rates were highest during the depression, according to Sydenstricker and Perrott, in families which were without employment or were on part-time work in 1932. The writers pointed out that "high fertility was associated with inability to succeed in the severe competition for jobs brought about by the depression."[117]

Among the economic factors correlated with fertility, the closest relationship occurs in the case of average monthly rental, larger families being found in those tracts where rents were lowest. "It seems safe to assume that the amount of rent paid is an extremely good indication of income or economic status, and hence that there is a highly significant inverse relation between income and fertility, except perhaps in the highest income groups."[118]

An indication that the inverse relationship between income and fertility is not universal is supplied by the highly discussed study of Stockholm families.[119] Fertility rates for the 39,000 Stockholm families were found to be in direct proportion to the amount of annual

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117 Edgar Sydenstricker and G. St. J. Perrott, "Sickness, Unemployment, and Differential Fertility," Milbank Memorial Fund Quarterly, XII (1934), 133.

118 National Resources Committee, Population Statistics, Urban Data, p. 30. See also Warren S. Thompson, "Some Factors Influencing the Ratios of Children to Women in American Cities, 1930," American Journal of Sociology, XLV (1939), 183-199.

119 Edin and Hutchinson, op. cit., pp. 49-56.

income, least in the lowest income brackets and highest for families with incomes in excess of 10,000 kroner per year. A division of the data according to both occupation and income demonstrated an inverse relation between fertility and income among industrial laborers. In all other occupational groups, however, fertility rates increased with income.[120]

Our present knowledge of economic, occupational, and social factors as related to fertility may be summarized in these statements. There is a general inverse relationship between fertility and occupational, economic, and social status in this country. Other indices of socio-economic status such as ownership status, rentals paid, and relief status, are similarly inversely associated with rates of reproduction.

e. Education. The fear of the disgenic effects upon population arising from low rates of reproduction among the educated classes has long been a topic of debate and concern among eugenicists and educators. Due in large part to this concern, numerous attempts have been made to study the relationship between fertility and educational status. A major difficulty is encountered in studying this relationship since the influence attributable to education is difficult to isolate. Education is ordinarily associated with a whole complex of factors, occupational status, income, and so forth. It is not surprising, therefore, that a certain amount of disagreement as to the nature of the relationship

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[120] Ibid., pp. 66-68.

may be found in the literature.

Data collected from class secretaries, published class reports, and biographies from a number of eastern colleges indicate that size of college families had declined phenomenally by 1900.[121] No attempt was made to discover existing fertility differentials, however.

Writing in 1900, Smith emphasized a fundamental fact in the fertility of college, compared with non-college women. Marriage for college women, she found, was postponed two years compared with that for non-college women. Thus, although non-college women were found to have borne slightly larger numbers of children, college women produced larger numbers of children per year of married life.[122] Goodsell,[123] a decade ago, came to essentially the same conclusion. In her study of 475 college women and 461 non-college women of the same social class, Goodsell found that although the non-college group had more children per marriage, the college group had more children per year of marriage. The average age at marriage for the college group was 25.3; for non-

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121 G. Stanley Hall and Theodate L. Smith, "Marriage and Fecundity of College Men and Women," The Pedagogical Seminary, X (1903), 275-314.

122 Mary Roberts Smith, "Statistics of College and Non-College Women," Publications of the American Statistical Association, VII (1900), 1-26.

123 Willystine Goodsell, "The Size of Families of College and Non-College Women," The American Journal of Sociology, XLI (1936), 585-597.

college, 23.6. Goodsell concludes, therefore, that there is really little difference in the fertility of the two groups, and that the effect of higher education is merely to raise the age of marriage of college women by nearly a year and a half.

Although not definitely attributed to education itself, Nearing[124] has indicated that the marriage rate for non-college women is considerably above that for college women. Although the proportion of college men who marry is higher than that for college women, the proportion is lower than among non-college men.

Upon surveying two Utah communities, Butt and Nelson[125] concluded that there is no tendency to race suicide on the part of the better educated groups. In summary, they argue that "education is of minor importance in determining the size of the family. Vocation, social attitudes of the group, inherent physical vigor, economic considerations, and other factors far outweigh education."[126]

In a Connecticut survey embracing 616 completed rural families, Whetten[127] found an inverse relationship between education and fertility,

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124 Nellie Seeds Nearing, "Education and Fecundity," Journal of the American Statistical Association, XIV (1914), 156-174.

125 N. I. Butt and Lowry Nelson, "Education and Size of Family," The Journal of Heredity, XIX (1928), 327-330.

126 Ibid., p. 329.

127 Nathan L. Whetten, "Education and Size of Family," The Journal of Heredity, XXIV (1933), 275-287.

but concludes that the phenomenon of differential fertility among rural people "is the result of several factors in combination, and that the amount of formal schooling, by itself, has little, if any, influence as yet on the size of the family."[128]

In his study of fertility through the records of male students entering the University of California, Holmes[129] found that the best educated parents had the smallest families. In instances where both father and mother had a common school education, the average number of children was 4.17, compared with only 3.10 in instances where both parents were college educated. In his study of completed Oklahoma families, Sewell[130] found that the mean number of children born alive increased with decreasing education of the wife. This association was found true when highest grades of school completed were grouped as follows: 10 and over, 7-9, 4-6, 0-3. The mean numbers of children born alive were 3.7, 5.0, 5.9, and 6.9, respectively.

Although the chief interest was in trends or changes in size of

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128 Ibid., p. 278.

129 Holmes, op. cit., pp. 410-411.

130 Sewell, op. cit., p. 431.

American families, Baber and Ross[131] collected information indicating the inverse relationship between fertility and education.

Among the best information on the association between education and fertility is that furnished by the Health Survey and analyzed by Kiser.[132] His general conclusion is that increased fertility is associated with decreased education. A more elaborate statement of his conclusions seems appropriate here:

> The inverse relation between educational status and birth rates, found at least to some extent within each nativity-color group, was most consistently manifested among the native-white wives. Even among these the difference between the average rate for the college and the high school groups was relatively small. Furthermore, although the average fertility rate for native-white wives of 'Under 7th Grade' status was substantially in highest position, there appeared to be no systematic pattern of variation in fertility by specific grade of school attainment within the 'Under 7th Grade' group.
>
> The analysis by age indicated that among native-white wives the range of variations in fertility according to educational status was much wider at ages under 25 than at older ages. In the younger age groups the fertility rates for wives of college status were conspicuously low in relation to those for other educational classes, but at older ages the rates for wives of high school status occupied lowest positions . . .
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> In the combined sample of foreign-white wives 15-44 years of age, the college group ranked in the lowest position and the

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131 Ray Erwin Baber and Edward A. Ross, Changes in the Size of American Families in one Generation (Madison: University of Wisconsin Studies in the Social Sciences and History, 1924), pp. 58-71.

132 Kiser, Group Differentials in Urban Fertility, pp. 79-110. See also Kiser, "Variations in Birth Rates According to Occupational Status, Family Income and Educational Attainment," pp. 55-56.

> 'Under 7th Grade' group in highest position with respect to fertility. Similar to the situation among native whites was the lack of systematic variations in the fertility rates by specific grade within the 'Under 7th Grade' group. The analysis by age tended to emphasize similarities rather than variations in fertility rates by educational status . . .
>
> Among colored wives in the total sample the fertility rate for the minority reporting college attandance was relatively low. There was a marked similarity in the fertility rates among the more important subdivisions of the sample along educational lines. This similarity held true at all ages . . .[133]

The reversal of the usual inverse relationship between education and fertility for Stockholm families created considerable discussion. Nevertheless, Edin and Hutchinson[134] found that fertility rates, without exception, increased from the lowest to the highest education groups. A number of tests demonstrated the validity of this association.[135]

In summary, the studies seem to demonstrate the general inverse association between education and fertility, with very slight differences between those having high school and college educations.

f. Personal Characteristics and Other Factors. A number of other investigations[136] have attempted to establish relationships between

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133 Kiser, Group Differentials in Urban Fertility, pp. 109-110.

134 Edin and Hutchinson, op. cit., pp. 78-80.

135 For an excellent summary of the relationship of fertility and education see National Resources Committee, The Problems of a Changing Population, pp. 144-146.

136 An excellent survey of research done to date, an analysis of the limitations of available birth statistics, and bibliography may be found in P. K. Whelpton, Needed Population Research (Lancaster: The Science Press Printing Company, 1938), pp. 40-94.

fertility and factors not previously reviewed. Certain of these studies will be reviewed briefly in this section.

Certain biological characteristics are influential in the rate of reproduction.[137] Stix has shown that the incidence of pathology with advancing age is an important factor in the decline of fertility. Thus it would seem clear that this factor in conjunction with age at marriage, is highly important in fertility.[138] Pomerat demonstrated the importance of age in his study of 987 marriages in Worcester, Massachusetts. One hundred ninety-one cases were childless, having no births or stillbirths. The marriage mean of the fertile male group was 26.198; of the childless male group 30.181. The marriage age mean of the fertile females was 23.573; of childless females 28.128.

Several studies[139] have attempted to correlate birth rates with physcho-social characteristics. Intelligence quotient, for example, correlates negatively with the birth rate, according to Maller and

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137 Regine K. Stix, "Research in Causes of Variations in Fertility: Medical Aspects," American Sociological Review, II (1937), 668-677.

138 Gerard Roland Pomerat, "Fertility in Relation to Age at Time of Marriage," Human Biology, VIII (1936), 420-432. See also Clyde V. Kiser, "Voluntary and Involuntary Aspects of Childlessness," Milbank Memorial Fund Quarterly, XVII (1939), 51-68.

139 Cf. J. B. Maller, "Vital Indices and Their Relation to Psychological and Social Factors," Human Biology, V (1933), 94-121; Ogburn and Tibbitts, op. cit., pp. 6-8.

Ogburn and Tibbitts.[140] Likewise, Lentz, in a study of 4,330 cases found a marked inverse relation between the size of the students' families and I. Q. as determined by group tests of intelligence.

Several studies have been made of the association between migration and fertility.[141] One survey made by Hitt and Bradford indicates that residential instability is associated with high fertility. Another study reported by Kiser[142] indicates that the fertility of migrants differed only slightly from residents of comparable age and social status.

Homogenity of parental traits in relation to size of family was studied by McKain and Whetten.[143] Analyzing 1237 Connecticut records according to the number of traits shared by husband and wife, the

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140 Theodore Lentz, Jr., "Relation of IQ to Size of Family," Journal of Educational Psychology, XVIII (1927), 486-496. Other studies dealing with the same question but with varying approaches are: Herbert S. Conrad and Harold E. Jones, "A Field Study of the Differential Birth Rate," Journal of the American Statistical Association, XXVII (1932), 153-159, and Raymond R. Willoughby, "Fertility and Parental Intelligence," American Journal of Psychology, XL (1928), 671-672.

141 Homer L. Hitt and Reed H. Bradford, "The Relation of Residential Instability to Fertility," Rural Sociology, V (1940), 88-92.

142 Clyde V. Kiser, "Birth Rates Among Rural Migrants in Cities," Milbank Memorial Fund Quarterly, XVI (1938), 369-381.

143 Walter C. McKain, Jr., and N. L. Whetten, "Size of Family in Relation to Homogeneity of Parental Traits," Rural Sociology, I (1936), 20-27.

writers conclude that "there is a positive correlation between the homogeneity of parents . . . and the size of their family."[144]

Although a study of the literature bearing upon differential fertility reveals that man has been concerned with this problem for centuries, one is impressed by the paucity of reliable studies until around the beginning of the present century. Additional work in the field of differential fertility will undoubtedly add materially to the existing knowledge of this phenomenon. The present state of information regarding differential fertility may be listed categorically as follows:

(1) Fertility varies inversely with population density. Urban populations are least fertile, rural-nonfarm populations somewhat more fertile, and rural-farm populations are most fertile.

(2) Racial differentials in fertility tend to disappear when strictly comparable residential groups are compared. Foreign-born whites are somewhat more fertile than native-born whites; Negroes in cities tend to fall below whites in reproduction rate, while those in rural areas tend to surpass the whites.

(3) Certain religious attitudes, such as those held by Catholics and Mormons, appear to contribute to the higher reproduction rates of these groups, when compared with Protestants.

(4) There is a general inverse relationship between fertility

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[144] Ibid., p. 26.

and occupational, economic, and social status. This relationship holds true within urban and rural groups.

(5) Education and fertility are inversely related, with differences being slight between those having high school and college educations.

CHAPTER III

TRENDS IN FERTILITY

Social phenomena rarely exist as isolated, independent units. The existence of a social phenomenon in one locality is justification for at least a temporary hypothesis that the phenomenon is widespread. Proceeding on such an assumption, it is our belief that reproduction patterns in Louisiana are not unrelated to patterns elsewhere. It is our purpose in this chapter, therefore, to investigate trends in reproduction rate throughout the world, in the United States, in regions within this country, and finally in Louisiana.

A. The World. Among the most significant demographic phenomena of the past six or eight decades has been the progressive decline in human fertility.[1] As cited by numerous scholars, this trend has been very pronounced in the Western world, affecting the greater portion of Europe as well as countries peopled by Europeans.

Precise trends for all portions of the globe are impossible to determine with any degree of accuracy. For vast portions of continental

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[1] See for example Frank Lorimer and Frederick Osborn, Dynamics of Population (New York: Macmillan & Company, 1934), p. 3; also, Paul H. Landis, Population Problems (New York: American Book Company, 1943), pp. 16-21; also, Warren S. Thompson, Population Problems (3rd ed.; New York: McGraw-Hill Book Co., 1942), pp. 153-156. For an intensive study of decline of birth rates in Europe see Roderich von Ungern-Sternberg, The Causes of the Decline in Birth-Rate Within the European Sphere of Civilization (Long Island, New York: Eugenics Research Association, 1931).

Asia, Africa, South America, and Oceania, no statistics of the vital processes are available. Relatively recent statistics and estimates, however, provide clues as to the probable trends for many such areas.

Although fertility has declined generally throughout the Western world, one is impressed with variability in the rates of decline and the different times at which the downward trends were initiated. The more significant trends in reproduction throughout the known world will be observed through an examination of both crude birth rates and the more refined fertility indices.

Although a deficient measure in many respects, the crude birth rate must be used in studying world trends since the more refined measures are not available for many countries. Figure 1, showing crude birth rates for selected countries, depicts graphically the principal trends in fertility. The most striking trend is the gradual decline in the crude birth rate. The crude rate for Sweden declined with each successive period from 1878-1882 to 1935-1938. In France birth rates exhibit a similar trend from the 1818-1822 period onward to the present, with one minor exception. Birth rates for Australia, a country peopled chiefly by Anglo-Saxons, illustrate the downward trend characteristic of nations populated by Europeans.

While the crude birth rate for most countries has been declining, the decrease did not begin at the same time everywhere. The decline of the birth rate in Italy, for example, began later than in Sweden and France, but earlier than in Chile or Japan.

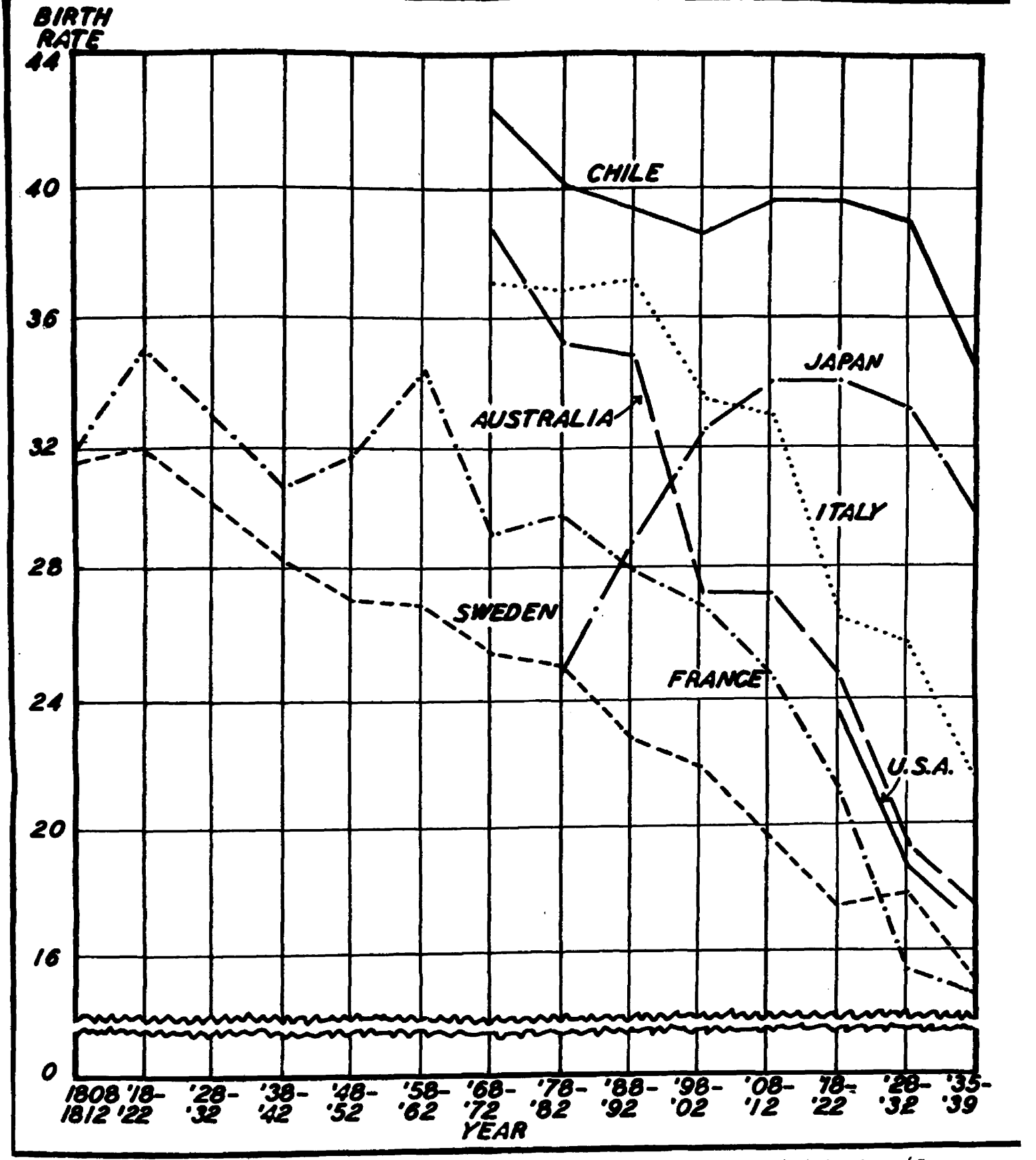

Figure 1. Trends in the Crude Birth Rates of Selected Countries, 1808-1939. (Source: Warren S. Thompson, Population Problems, 3rd ed., New York, 1942, p. 152.)

Minor exceptions in the general declining trend exist in the instances of Formosa, the Malay States, Mexico, Puerto Rico, the Straits Settlements, and Venezuela, for which the trend thus far appears to be upward.[2]

Although the trend generally has been downward, the relative positions of various countries with respect to crude birth rates, as revealed by 1935-1939 averages, are significant. The highest rates are to be found in eastern and southern Europe, South and Central America, and portions of Asia. The Chilean rate of 34.2 in 1935-1939 and the Japanese rate of 29.7 in 1935-1939, are approximately twice as high as the Swedish rate of 14.5 for a comparable period. The lowest rates are to be found in western and northern Europe, North America, Australia, and New Zealand.

The more refined indices confirm the essential downward trend in fertility shown by the crude birth rate. The number of legitimate births per 1000 married women, aged 15 to 44, for selected countries decreased markedly from the period 1880 to the present.[3] A gradual decline in births with each successive period is true for all northern and western European countries covered by the data, (Belgium, Denmark,

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[2] See League of Nations, Statistical Year-Book, 1941-42 (Geneva: 1943), pp. 36-37.

[3] Thompson, Population Problems, 3rd ed., p. 161; also 2nd ed., p. 133.

England and Wales, France, Germany, Netherlands, Norway, Scotland, Sweden, and Switzerland), and for all southern European countries, (Bulgaria and Italy), except for Spain, where births began declining a decade later than in the other countries. Legitimate births in New Zealand also declined with each period after 1800, while those in Australia began to decline after 1900. More recent data for Japan and India show that between 1925 and 1930, the number of births in Japan slightly declined, while in India, between 1920-1922 and 1931, the number of births increased considerably.

Of the twelve European countries for which the number of legitimate births per 1000 women 15 to 44 was available in the 1880-1882 period, all except France had rates above 250. For the latest period, about 1930, the rates in seven of the twelve countries (Australia, Denmark, England and Wales, France, Germany, New Zealand) had fallen below 150. Rates for the population of Italy, Norway, Netherlands, Scotland and Spain all had fallen but remained above 150. The rates for Sweden and Denmark in 1935, for example, were less than half the rates in the period 1880-1882.

Other measures of fertility for selected European countries give added support to the declining fertility trend.[4] The data, covering a period up to about 1920, indicate that fertility as measured by these indices has been declining in most of the European countries for

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[4] See Robert R. Kuczynski, The Balance of Births and Deaths (New York: The Macmillan Company; Washington, D. C.: The Brookings Institution, 1928-1931), I, pp. 135-138; II, pp. 163-164.

which statistics are available (confinements per 1000 women 15-44: Denmark, Finland and Sweden; live-born per 1000 women 15-44: Austria, Bulgaria, Hungary, Poland and Ukraine; live- and still-born per 1000 women 15-44: France and Germany) since around 1880 or 1890. Thus, the number of confinements decreased with each successive period in Sweden from 3,034 in 1871-1880 to 2,361 in 1921-1922, a 22 per cent decline. The number of confinements in Denmark dropped from 3,162 in 1901-1905 to 2,267 in 1926, a 28 per cent decline, and in Finland from 3,087 in 1881-1890 to 2,391 in 1921-1925, a 23 per cent decline. Likewise, since about the turn of the century, the number of live-born births have consistently decreased in Austria, Bulgaria, Hungary, Poland and the Ukraine. In Austria, the decline in number of live- and still-born children was precipitous, decreasing from 2,935 in 1901-1905 to 1,613 in 1928. From the period, 1891-1900 to 1925, the populations of Germany experienced a decline in the number of live- and still-born births from 3,209 to 2,000, a 39 per cent decline. As measured by this index, the French population with very low rates throughout the period, showed some variability.

The most important index of fertility tendencies, perhaps, is the net reproduction rate since it takes into consideration the death rate and indicates the rate of population growth or decline. An inspection of the net rates[5] shown in Figure 2 reveals two trends. First, there is

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[5] See League of Nations, op.cit., pp. 50-51 for additional net rates. Other countries for which net rates are available include: Africa: Union of South Africa; America: Canada; Europe: Austria, Belgium, Bulgaria, Denmark, Spain, Estonia, Finland, Hungary, Ireland, Latvia, Norway, Netherlands, Poland, Portugal, England and Wales, Scotland, Switzerland, Czecho-Slovakia; Oceania: New Zealand.

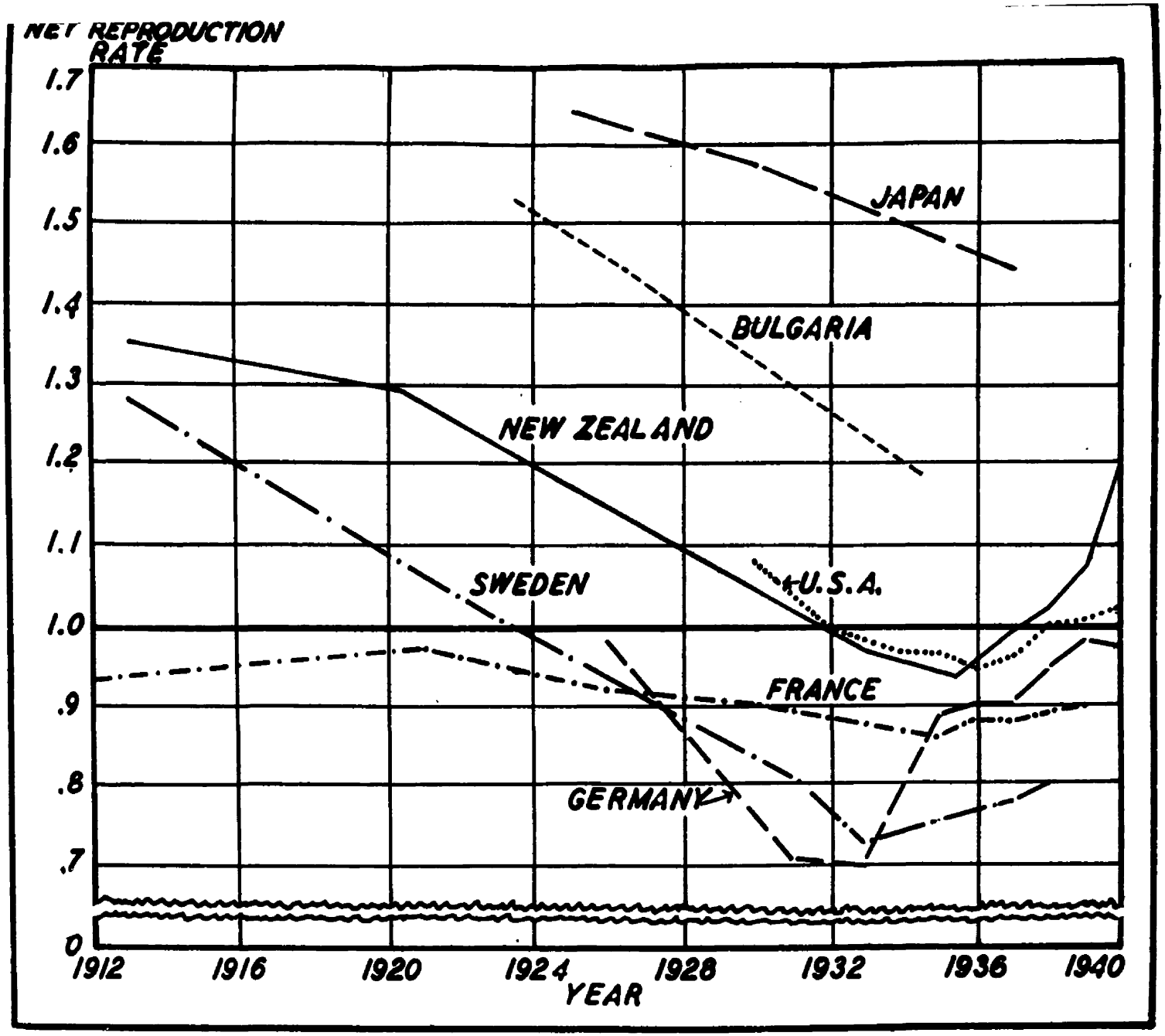

Figure 2. Trends in the Net Reproduction Rates of Selected Countries, 1912-1940. (Source: League of Nations, Statistical Yearbook, 1941/42, Geneva, 1943, pp. 50-51.)

a fairly general decline in the rate of population growth, and second, there is a tendency for the downward trend to become arrested during the 1930's, with some countries recording increases. Sweden, Denmark, and Germany had fallen below the replacement level. Shortly thereafter, the United States and New Zealand fell below that level. While the net rates for Japan and Bulgaria were falling during the period covered by the data, the populations of these countries were growing at a relatively rapid pace. During the middle and late 1930's, the net rates for Germany and New Zealand rose considerably, while those for Sweden rose slightly.

The data presented seem to warrant the following generalizations:

1. Beginning during the last part of the nineteenth century, the trend in world fertility has been downward. Important variables in the general fertility trend, however, are rates of decline and periods at which declines began.

2. Data are not available from which to determine essential trends for a large portion of the world, including much of Asia, Africa, South America, and Oceania.

3. Although the general trend in fertility has been downward, there is great variability in present fertility levels. Highest fertility ratios are to be found in eastern and southern Europe, South America, portions of Asia, and Oceania; lowest ratios are to be found in western and northern Europe, North America, Australia, and New Zealand.

4. Net fertility rates also indicate a declining rate of population growth. During the last decade, however, there has been a tendency for this index of fertility to increase in a number of countries.

B. The United States. The persistent decline of fertility in the United States takes its place among the most important social changes occurring in the history of this nation. The declining rate of reproduction in this country has its impact upon every phase of our national life. The downward trend, as indicated by the various measures of reproduction, suggests that changes occurring in this country are an integral part of the general downward trend characteristic of Western civilization.

Crude birth rates in the United States have been declining each decade since 1800.[6] By 1910 the crude birth rate was less than half of the rate in 1800. Since 1910 it has declined still further, or to 17.9 in 1940. This figure is less than one third as large as that for 1800. The rapidity of the decline would probably have been even greater if birth registration had been equally complete throughout the period. In this country, as is generally the case, enumeration and birth registration have become more complete with each successive Census.[7]

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[6] W. S. Thompson and P. K. Whelpton, Population Trends in the United States (New York: McGraw-Hill Book Company, Inc., 1933), p. 263.

[7] Thompson, 3rd ed., op.cit., p. 151.

The preceding section on world trends shows that the United States is one of the countries with a low birth rate. While the figures for this country are not as low as those for certain of the western and northern European countries, they are somewhat lower for South and Central America.

A more accurate picture of declining fertility in this country may be obtained by observing trends in fertility ratios for each decade since 1800. (See Figure 3.) The ratio of the number of children under 5 to 1000 women 16-44, declined from 976 in 1800 to 342 in 1940. The ratio of 342 in 1940, about one third of the index in 1800, resulted from a continuous decrease from decade to decade, except for one slight increase between 1850 and 1860. The greatest decreases in fertility came during the decades 1840 to 1850, 1920 to 1930, and 1930 to 1940.

In order to indicate trends by residence and race, fertility ratios were computed for the United States, the regions, and the divisions, as shown in Table V.

1. Trends by Residence. The decline of fertility in each of the residence categories is evident from Table V. The urban, rural-nonfarm, and rural-farm populations all show marked decreases in rate of reproduction after 1920. Both urban and rural populations registered slight increases in fertility during the decade 1910 to 1920. Although urban and rural-farm rates of reproduction declined between 1920 and 1940, urban rates declined more rapidly than did the rural-farm rates.

Net reproduction rates for the residence groups give additional emphasis to the decreasing rate of reproduction, as shown by Table VI.

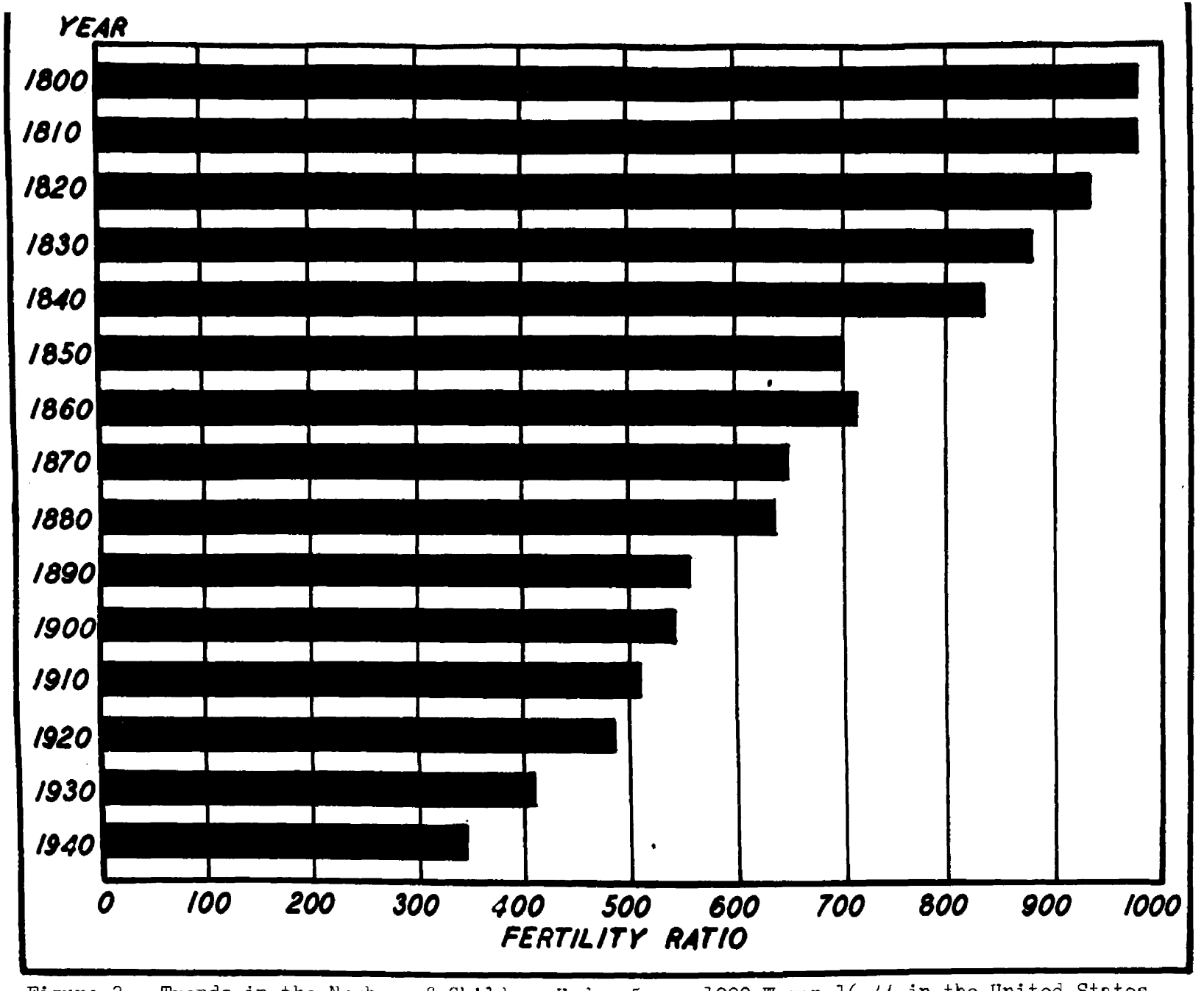

Figure 3. Trends in the Number of Children Under 5 per 1000 Women 16-44 in the United States, 1800-1940. (Source: T. Lynn Smith, The Sociology of Rural Life, New York, 1940, p. 148.)

TABLE V

TRENDS IN FERTILITY RATIOS IN THE UNITED STATES, REGIONS, AND DIVISIONS, ACCORDING TO RESIDENCE AND RACE, 1890-1940

Area and Race	Total						Urban				Rural-Nonfarm			Rural-Farm*			
	1940	1930	1920	1910	1900	1890	1940	1930	1920	1910	1940	1930	1920	1940	1930	1920	1910
United States																	
Both	329	391	468	488	518	529	257	315	381	374	400	471	527	484	545	612	610
White	324	386	471	484	508	517	258	316	392	382	398	470	537	464	535	613	603
Negro	374	429	438	524	585	619	248	309	254	277	412	482	445	587	587	610	649
North																	
Both	296	362	444	439	467	480	235	320	399	382	374	447	-	432	495	539	538
White	297	364	449	442	470	482	255	321	405	386	374	446	-	431	494	540	539
Negro	268	320	276	299	336	402	250	297	243	245	400	480	-	525	612	484	506
South																	
Both	390	459	523	598	627	637	262	315	336	361	425	506	-	522	582	615	686
White	384	468	547	617	631	631	268	326	368	393	430	524	-	496	584	638	700
Negro	406	439	465	557	619	649	246	285	251	291	407	447	-	587	578	562	655
West																	
Both	325	353	429	437	478	513	259	280	321	324	419	458	-	457	514	576	576
White	322	326	423	435	477	516	259	259	318	224	415	422	-	446	482	569	572
Negro	398	667	595	513	516	379	259	567	442	297	569	785	-	601	795	732	663
New England																	
Both	283	359	429	394	394	354	263	341	416	383	347	422	-	378	462	488	459
White	282	358	430	395	395	355	262	340	417	384	347	421	-	377	462	488	458
Negro	315	393	358	318	312	326	312	382	348	300	312	475	-	430	444	464	555
Middle Atlantic																	
Both	262	343	439	427	441	432	237	314	410	397	352	464	-	391	470	545	517
White	263	345	446	431	445	434	237	316	417	402	353	465	-	391	469	547	518
Negro	244	298	262	271	294	328	236	284	242	244	335	434	-	386	561	417	422

TABLE V (Continued)

Area and Race	Total						Urban				Rural-Nonfarm			Rural-Farm*			
	1940	1930	1920	1910	1900	1890	1940	1930	1920	1910	1940	1930	1920	1940	1930	1920	1910
East North Central																	
Both	314	369	444	440	472	505	270	327	399	378	408	464	-	430	482	528	523
White	316	371	449	442	474	507	270	328	406	382	408	464	-	430	482	529	523
Negro	273	321	266	302	340	427	261	307	238	242	416	470	-	471	579	497	533
West North Central																	
Both	345	393	463	488	545	593	267	299	338	339	372	409	-	454	516	555	581
White	345	394	468	492	549	597	268	299	344	344	368	405	-	452	515	555	582
Negro	328	368	303	340	400	481	253	288	223	231	539	580	-	593	634	545	555
South Atlantic																	
Both	380	456	531	585	608	606	253	313	344	361	427	520	-	529	590	638	682
White	369	464	547	589	595	588	253	329	377	393	427	539	-	490	584	651	679
Negro	411	439	497	577	630	638	255	273	264	296	425	463	-	614	603	613	690
East South Central																	
Both	420	482	529	596	619	634	264	314	320	340	444	516	-	531	588	606	671
White	421	506	568	626	630	631	274	339	359	378	460	552	-	512	605	643	696
Negro	417	424	442	536	598	639	242	258	238	272	380	394	-	580	551	521	621
West South Central																	
Both	378	445	508	619	672	706	272	318	336	378	407	474	-	502	568	595	706
White	377	443	531	644	690	713	282	316	361	405	410	477	-	487	565	620	730
Negro	384	452	429	544	626	690	234	323	239	301	393	461	-	554	574	513	634
Mountain																	
Both	425	465	538	532	575	598	328	347	386	379	489	529	-	540	590	644	643
White	418	438	537	530	576	604	329	331	388	382	483	491	-	521	566	644	641
Negro	617	710	569	579	555	386	282	559	277	234	649	773	-	759	772	663	692
Pacific																	
Both	283	306	366	379	414	461	240	263	299	302	376	406	-	380	433	505	512
White	282	280	358	378	413	463	239	240	294	301	345	375	-	380	397	492	509
Negro	299	642	610	449	461	375	256	568	480	324	471	801	-	384	830	806	613

*Fertility ratios for 1910 and 1920 are "rural."

Net reproduction rates for urban population in the United States decreased from 88 in 1930 to 74 in 1940. Similarly, both rural-nonfarm and rural-farm net rates declined in the ten-year period, the former from 132 to 114 and the latter from 159 to 144.

2. Trends by Race. Table V indicates the persistent decline in fertility of both whites and Negroes[8] in the United States. For both races, each successive Census after 1890 brought a drop in rate of reproduction. Fertility of urban whites declined after 1920 while fertility of Negroes declined after 1930. Rural-nonfarm whites declined in fertility at each Census period after 1920, while rural-nonfarm Negroes increased in rate of reproduction from 1920 to 1930, after which their rates decreased sharply. Rural-farm white rates of reproduction increased slightly between 1910 and 1920 but decreased steadily thereafter, while rural-farm Negro rates declined throughout the period, maintaining a relatively constant rate in the last two decades.

Net reproduction rates for whites and Negroes in the past decade show drastic declines. (See Table VI.) The net rate for all whites in the United States fell from 111 to 94 between 1930 and 1940; for

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[8] Throughout this study, non-whites will be referred to as "Negroes" since "other races" represent so small a proportion of the total population. According to the Sixteenth Census, in the United States as a whole, in the North and South, and in the New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, and West South Central states, other races constituted .5 per cent or less of the total population. In the West and in the Mountain and Pacific divisions, the proportion of other races is less than 3.5 per cent. For the state of Louisiana, races other than white or Negro have accounted for less than .12 per cent of the total population since 1900.

TABLE VI

TRENDS IN NET REPRODUCTION RATES IN THE UNITED STATES, DIVISIONS, AND LOUISIANA, ACCORDING TO RESIDENCE AND RACE, 1930-1940

Area and Year	Total			Urban			Rural-Nonfarm			Rural-Farm		
	Both	White	Non-White	Both	White	Non-White	Both	White	Non-White	Both	White	Non-White
United States												
1940	96	94	107	74	74	74	114	114	114	144	140	160
1930	111	111	110	88	90	75	132	133	119	159	159	156
New England												
1940	84	83	*	78	77	*	101	101	*	*	*	*
1930	104	104	*	98	98	*	122	122	*	*	*	*
Middle Atlantic												
1940	77	77	77	69	69	75	103	104	*	117	117	*
1930	97	98	84	88	89	80	134	135	*	147	148	*
East North Central												
1940	92	92	86	78	78	84	119	119	*	134	134	*
1930	105	106	87	92	92	84	132	132	*	148	148	*
West North Central												
1940	101	101	*	76	77	*	109	108	*	138	138	*
1930	112	113	*	84	84	*	117	116	*	153	152	*
South Atlantic												
1940	107	105	112	71	71	73	119	119	118	150	144	159
1930	127	130	119	86	91	74	143	149	124	169	170	124
East South Central												
1940	120	121	118	76	79	70	122	128	101	154	150	163
1930	133	142	113	86	93	70	140	152	105	165	174	105
West South Central												
1940	109	108	110	78	81	68	114	115	109	146	142	158
1930	122	126	109	86	92	67	128	133	106	159	164	106

TABLE VI (Continued)

Area and Year	Total			Urban			Rural-Nonfarm			Rural-Farm		
	Both	White	Non-White	Both	White	Non-White	Both	White	Non-White	Both	White	Non-White
Mountain												
1940	123	120	*	94	95	*	138	136	*	160	152	*
1930	133	131	*	97	98	*	148	147	*	176	172	*
Pacific												
1940	85	85	*	73	73	*	112	111	*	108	108	*
1930	88	86	*	75	74	*	116	114	*	134	128	*
Louisiana												
1940	109	104	119	77	76	*	118	*	*	148	135	163
1930	122	127	114	84	90	*	134	*	*	167	174	152

Source: United States Bureau of the Census, Sixteenth Census of the United States: 1940, Net Reproduction Rates by States (preliminary). Series P-5, No. 13, Washington, Government Printing Office.

* Rates not shown for those population groups which, in 1940, had fewer than 20,000 females under 5 years old.

Negroes the fall was less sharp, or from 110 to 107. Urban white rates declined from 90 to 74 in the last decade, while urban Negro rates dropped from 75 to 74. The net rate of reproduction for the rural-nonfarm white residents declined from 133 to 114 in the past decade, while that for rural-nonfarm Negroes declined from 119 to 114. The rural-farm white rate dropped considerably, or from 159 to 140, while the rural-farm Negro rate increased slightly, or from 156 to 160.

Beginning early in the last century, the chief trend in fertility in the United States was one of persistent decline. The downward trend was characteristic of both whites and Negroes, and holds true for urban, rural-nonfarm, and rural-farm populations.

C. Regions of the United States. Odum and his associates have shown that the regions exhibit differences with respect to fertility.[9] Although not strictly comparable to the regions delimited by Odum, the two regional classifications used by the Bureau of the Census will serve for an analysis of regional trends in fertility. First, fertility trends in the broad groupings of North, South, and West will be treated, and second, fertility trends in each of the more refined divisional classifications, New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific states, will be discussed.

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[9] Howard W. Odum, Southern Regions (Chapel Hill: The University of North Carolina Press, 1936), p. 93.

The most striking trend common to the North, South, and West since 1800 is one of decline in fertility. (See Table V.) For every decade from 1890 to 1940, fertility ratios for the total population of the South and West declined. The trend of the reproduction rate in the North was clearly downward, although a slight increase occurred between 1910 and 1920. Fertility in the three regions declined to about the same extent from 1890 to 1940, or by 37 to 39 per cent in each region.

Likewise, the general trend in fertility among the nine Census divisions was downward, as indicated by Table V and Figure 4. Some of the divisions, however, increased in fertility during certain decades of the period, but in each of the divisions, the rate of reproduction was decidedly lower in 1940 than at any other previous period. Between 1890 and 1940, the divisions declined in such a way that the populations of the Mountain, East South Central, South Atlantic, and the West South Central states were characterized by the highest fertility ratios both at the beginning and the end of the period. Rates of reproduction in New England, Middle Atlantic, and Pacific states were lowest both in 1890 and 1940. During this period, fertility ratios in the West South Central states, of which Louisiana is a part, decreased from 706 to 378, or by nearly one half. New England's residents decreased least in fertility, from 354 to 238, or by only one fifth.

1. Trends by Residence. The decline of fertility for both rural and urban residential groups is striking for each of the three regions

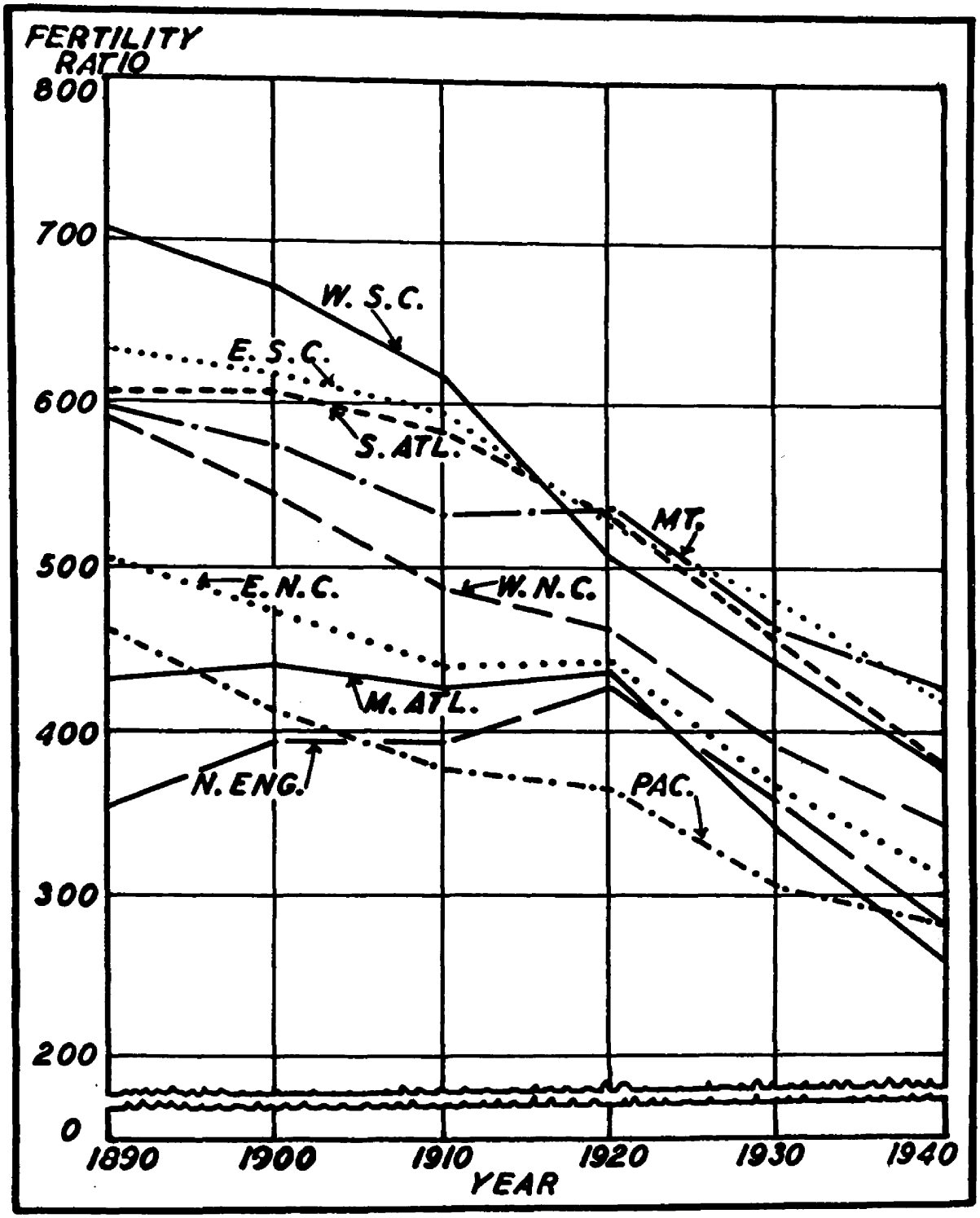

Figure 4. Trends in Fertility in the Divisions of the United States, 1890-1940.

after 1910. (See Figure 5A.) Rates of reproduction declined with each successive decade from 1910 to 1940 in the urban South and urban West. After increasing between 1910 and 1920, the rate of reproduction decreased in the urban North. Throughout the thirty years, the rural South, with the highest fertility ratios in the Nation, declined rapidly and consistently. Although rates of reproduction were relatively stationary in the decade 1910 to 1920, rates in the rural West and the rural North declined steadily in subsequent decades.

Although urban residents were characterized by very low fertility ratios in 1910, the percentage change in fertility ratios by 1940 was greatest in urban areas. The change was greatest for ratios in the urban North and urban South, and least in the rural North and urban West. The urban populations for the four southern divisions and the Pacific states declined steadily in fertility from 1910 to 1940. The fertility of the urban populations of the three northern divisions and the Mountain states declined consistently after 1920, but these populations reported increases between 1910 and 1920.

The rural populations of the four southern divisions and the Pacific states declined steadily in fertility from decade to decade during the thirty years, while the rural populations of the three northern divisions and the Mountain states increased in fertility until 1920, after which fertility ratios declined.

Although characterized by very low fertility ratios in 1910, the urban populations of five divisions, New England, Middle Atlantic, East North Central, South Atlantic, and East South Central states

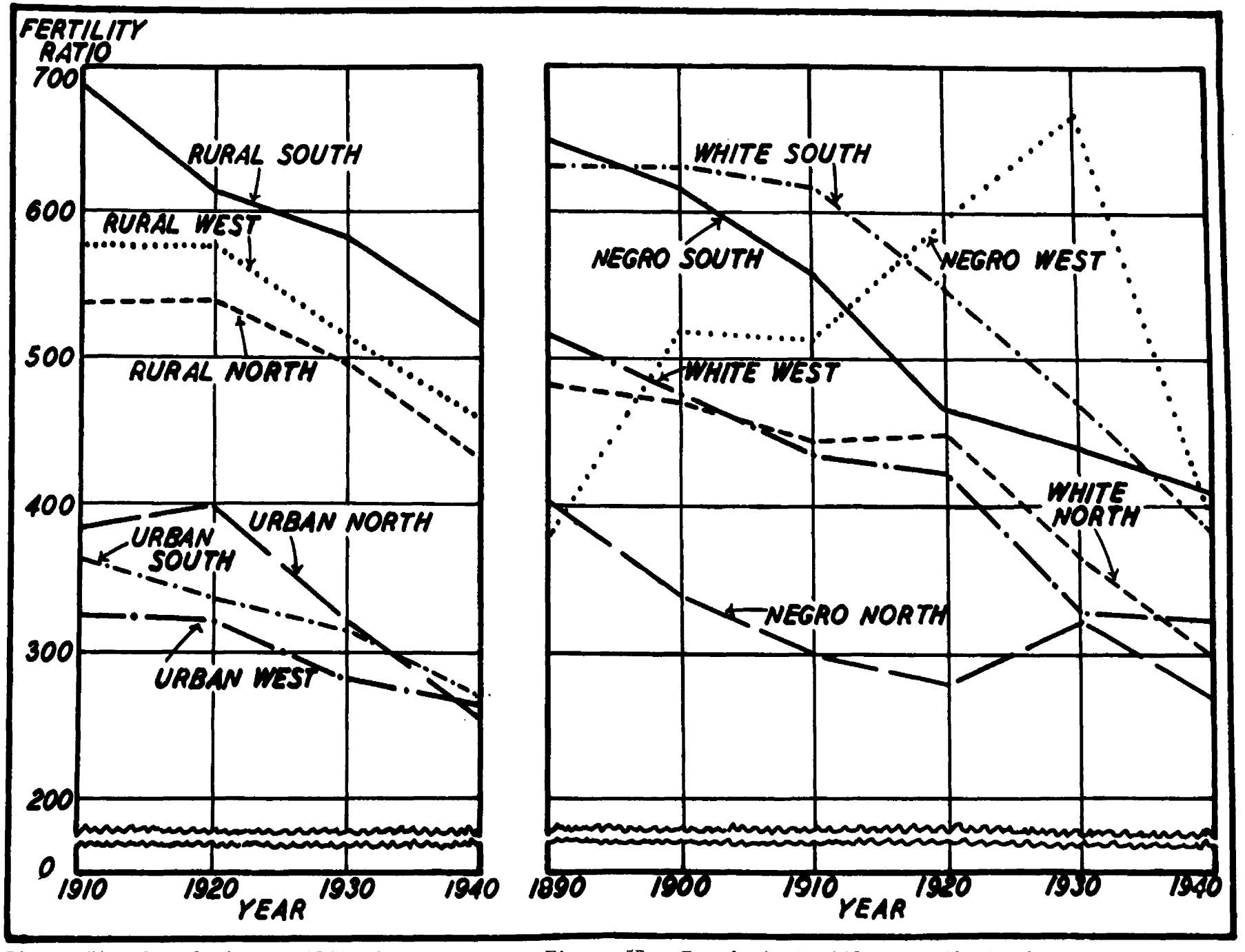

Figure 5A. Trends in Fertility in the Regions of the United States, by Residence, 1910-1940.

Figure 5B. Trends in Fertility in the Regions of the United States, by Race, 1890-1940.

experienced a greater percentage decline by 1940 than the rural populations. For the remaining four divisions, West North Central, West South Central, Mountain, and Pacific states, the percentage decline in the fertility of the rural population was slightly greater than the urban change. The greatest percentage change for any urban population occurred in the Middle Atlantic states, where fertility ratios declined from 397 to 237, or 40 per cent in the thirty years; the greatest percentage change for any rural population occurred in the West South Central states, where fertility ratios declined from 706 to 465, or 29 per cent in the thirty years.

Net reproduction rates for the nine divisions, as shown in Table VI, indicate a precipitous drop in each of the residential groups in the past decade. In the West South Central states, of which Louisiana is a part, the net reproduction rate for the urban population dropped from 86 to 78 between 1930 and 1940; that for the rural-nonfarm population from 128 to 114; and that for the rural-farm population from 159 to 146.

2. Trends by Race. Both whites and Negroes have been declining in fertility since 1890, as shown by Table V and Figure 5B. Although there are some significant fluctuations, this trend has been clearer for whites in the three regions than for the Negroes. The rate of reproduction for southern Negroes declined steadily from decade to decade. Fertility ratios for Negroes in the West [10], and the North

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[10] Thomas Wilson Longmore, A Demographic Analysis of First and Second Generation Mexican Population of the United States, 1940 (Unpublished Masters Thesis, 1942), pp. 29 and 37. Refer also to footnote 8.

have not declined in such orderly fashion. The trend was upward for Negroes in the West until 1930, after which the Mexicans were classified as whites,[11] then sharply downward in 1940. The trend for northern Negroes was downward throughout the period except for one sharp increase, between 1920 and 1930.

Fertility ratios for whites decreased systematically for every decade of the period in three divisions, the West North Central, the East South Central, and the West South Central states. In two other divisions, New England and the South Atlantic states, the trend was consistently downward after 1900. The Middle Atlantic and the East North Central states registered slight increases between 1910 and 1920, and the Mountain and Pacific states, slight increases between 1910 and 1930, and 1930 and 1940, respectively.

Only in two southern divisions, the South Atlantic and the East South Central states did the fertility ratios for Negroes decline consistently every decade from 1890 to 1940. In the North, Negro fertility declined until 1920, after which it increased to 1930, and dropped again by 1940 in the Middle Atlantic, East North Central, and West North Central states. In New England, Negro fertility ratios increased from 1900 to 1930, dropping during the past decade. Negro fertility in the Mountain and Pacific states fluctuated greatly during

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[11] Mexicans were returned as "white" in the 1940 Census. In the 1930 Census Mexicans were given a separate classification, having been included for the most part with the white population in earlier censuses.

the period, due in large part to Mexican migration[12] and change in Census classification.

Net reproduction rates for the nine divisions indicate that the trend in fertility has been downward in the past decade for both whites and Negroes. (See Table VI.) For the total white population and for the white populations of each residence group in each of the nine divisions, the net reproduction rate was lower in 1940 than in 1930. Due in all probability to a reduction in mortality, the net reproduction index for the total Negro population in the East South Central and West South Central divisions increased between 1930 and 1940. In all other divisions for which data are available, the net rates for Negroes declined. Urban and rural-nonfarm Negroes in all of the divisions except the West South Central states declined during this period. Rural-farm Negroes in the three southern divisions had higher net reproduction rates in 1940 than in 1930.

An analysis of regional trends in fertility indicates a general decline in fertility throughout the United States. This trend is conspicuous when one views changes in fertility in the three regions and in the nine divisions of the United States. When the three residence and the two racial groups are considered, the trend is invariably downward.

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[12] Ibid., p. 23. Of the 616,998 foreign-born Mexicans in the United States in 1930, 39.6 per cent migrated between 1920 and 1930, 34.7 per cent between 1910 and 1920, 27.7 per cent between 1900 and 1910, and 6.3 per cent before 1900.

D. Louisiana. Since 1880 the trend of fertility in Louisiana has been downward. (See Table VII and Figure 6.) Fertility ratios in Louisiana increased between 1850 and 1880, after which they declined steadily. Between 1880 and 1940, the rate of reproduction for the total population decreased from 727 to 386, a reduction of 47 per cent. The largest percentage changes came during the decades 1910 to 1920, and 1930 to 1940.

The downward trend in fertility characterizes each of the residential categories of the state, as indicated by Table VII and Figure 6. Fertility ratios for the total urban population decreased from 358 in 1910 to 258 in 1940, a percentage decline of 28 per cent. Total rural-farm ratios during the same period declined from 692 to 546, a decrease of only 21 per cent. The rural-nonfarm population between 1930 and 1940 decreased from 495 to 430, a percentage decrease of 13.

The net reproduction rate in Louisiana for each of the residential groups declined in the past decade. (See Table VI.) The net reproduction index for the total population decreased from 122 in 1930 to 109 in 1940. In the decade the net reproduction rate for urban residents of Louisiana decreased from 84 to 77; for rural-nonfarm residents this index declined from 134 to 118, and for rural-farm residents the rate decreased from 167 to 148.

For the white and Negro populations of Louisiana, the trend in fertility has been distinctly downward. (See Table VII and Figure 6.) Total rates of reproduction for whites in Louisiana have declined consistently after 1900, and total rates for Negroes in the state have

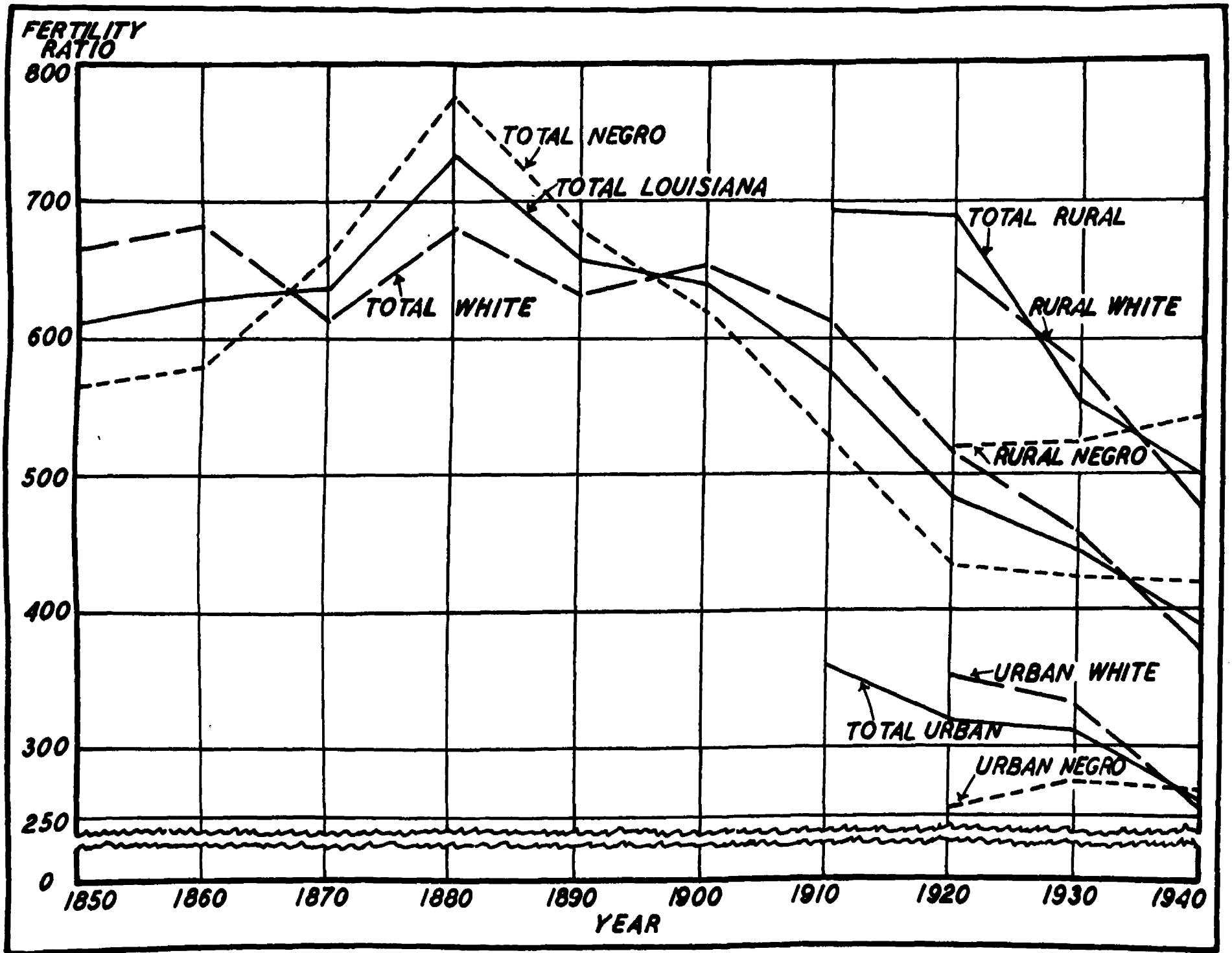

Figure 6. Trends in Fertility in Louisiana, by Race, 1850-1940; and by Residence, 1910-1940.

TABLE VII

TRENDS IN FERTILITY RATIOS IN LOUISIANA, ACCORDING TO RESIDENCE AND RACE, 1850-1940

Year	Fertility Ratios**											
	Total			Urban			Rural-Nonfarm			Rural-Farm*		
	Total	White	Negro	Total	White	Negro	Total	White	Negro	Total	White	Negro
1850	612	665	565	-	-	-	-	-	-	-	-	-
1860	629	682	578	-	-	-	-	-	-	-	-	-
1870	636	613	658	-	-	-	-	-	-	-	-	-
1880	727	680	773	-	-	-	-	-	-	-	-	-
1890	655	631	680	-	-	-	-	-	-	-	-	-
1900	637	652	620	-	-	-	-	-	-	-	-	-
1910	574	612	528	358	-	-	-	-	-	692	-	-
1920	481	515	432	318	352	254	-	-	-	587	570	519
1930	443	456	422	310	330	272	495	538	415	578	602	645
1940	386	367	418	258	256	261	430	434	421	546	506	595

* Fertility ratios for 1920 and 1910 are "rural."

** The age group 40-44 was estimated in the years 1850 and 1860 by dividing the number of females aged 40-50 by two.

decreased in magnitude consistently after 1880. For the whites, the largest percentage decrease came between 1930 and 1940 when fertility ratios declined from 456 to 367, a 20 per cent decrease; for Negroes the largest percentage decrease came between 1910 and 1920, when ratios fell from 528 to 432, an 18 per cent reduction. In the last decade when white fertility fell from 422 to 418, or less than one per cent, the decline was insignificant.

Fertility ratios for urban whites, rural-nonfarm whites, and rural-farm whites in Louisiana decreased consistently during the period for which data are available. Urban Negroes in the decade 1920 to 1930 increased in fertility but decreased by 1940; rural-nonfarm Negroes increased slightly in fertility between 1930 and 1940, while rural-farm Negroes increased in fertility from 1920 to 1940.

Net reproduction rates for the two races (Table VI) indicate declines in fertility for the total white population, for the urban white population and the rural-farm population in the last decade. Data were not available for the rural-nonfarm whites. During this decade the ratio for the total Negro population increased slightly, or from 114 to 119, and that of rural-farm Negroes, increased from 152 to 163. Since the numbers were small for the Negro urban and rural-nonfarm populations, rates of reproduction are not available for these groups.

These data indicate the downward trend in fertility of Louisiana's population since around 1880. This trend is characteristic of both racial groups, and of the three residence groups. Residential trends

by race, however, indicate fluctuations since 1920, particularly in Negro fertility.

CHAPTER IV

VARIATIONS IN FERTILITY IN LOUISIANA

The most cursory observation reveals that the fertility of the population varies greatly from one part of Louisiana to another. Previous studies suggest the necessity of considering residence, race and color, type of farming, ethnic origin, religion, and other socio-economic factors if one would understand the reasons for these variations. This portion of the study contains the results of an attempt to discover the manner in which the fertility of population varies throughout Louisiana, and preliminary analysis of the factors responsible for the differences observed.

As a first step it was necessary to obtain an overall picture, based upon comparable data, of the rates of reproduction in the state. The 64 parishes, the local governmental units into which Louisiana is divided, constitute logical geographic divisions to use in starting the analysis. Accordingly, fertility ratios were calculated for the total populations of each of the 64 parishes in Louisiana. These ratios were then classified according to size, and plotted on an outline map of the state. (See Figure 7.)

This map reveals several important variations in the rates of reproduction. Evident at a glance is the fact that those parishes containing large urban centers invariably are low in fertility, while those which are most rural invariably have high reproduction rates. Parishes such as Orleans, Caddo, East Baton Rouge, Rapides and Ouachita, each of which has a large urban center, are lowest in fertility. On the other

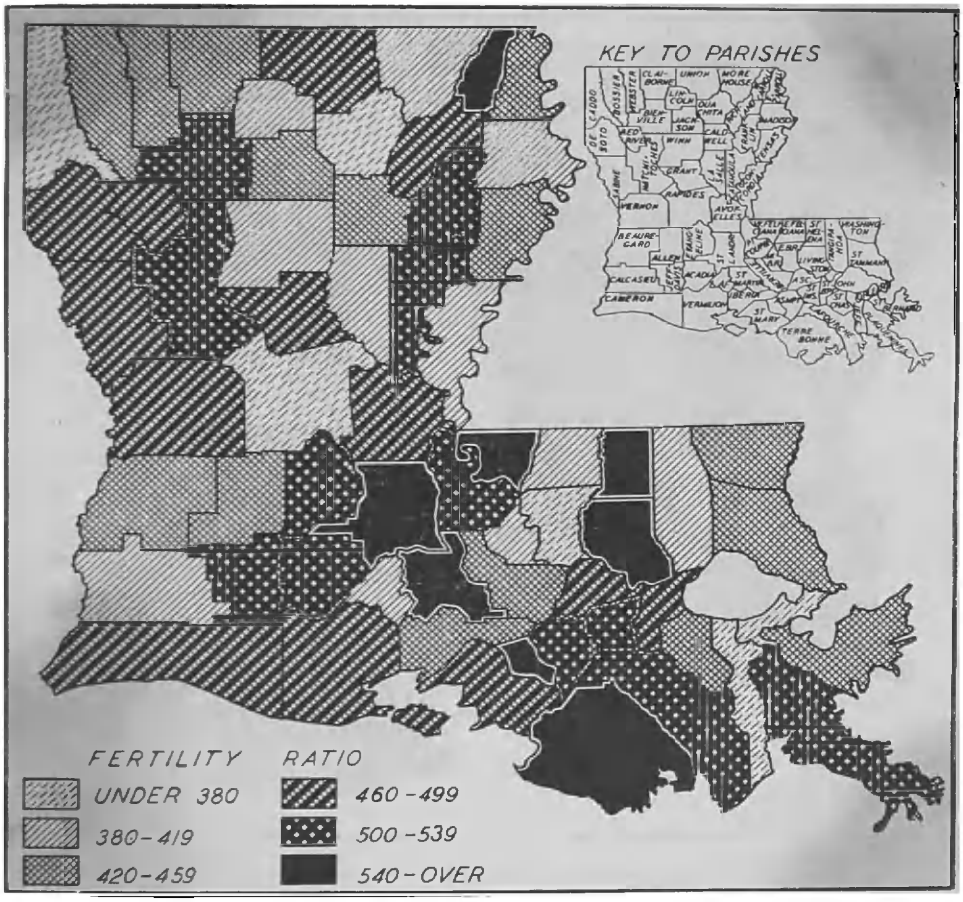

Figure 7. Variations in Fertility Ratios in Louisiana, by Parishes, 1940.

hand, such parishes as Livingston, St. Helena, West Carroll and West Feliciana, none of which contains centers large enough to qualify as urban, are among the highest in reproduction rate. This suggests the fundamental importance of the residential factor in the study of fertility.

The data presented in Figure 7 suggest, however, that one should be cautious in attributing all of the variations to the residential differential. The higher rate of reproduction in southern than in northern Louisiana is evident. Of the seven parishes having ratios of 540 or over, only West Carroll is located in northern Louisiana. The other six parishes in this group, Livingston, St. Helena, St. Landry, St. Martin, Terrebonne, and West Feliciana, are all located in the southern portion of the state. Furthermore, St. Martin, St. Landry, and Terrebonne Parishes, each containing a fairly large population aggregate, are among the highest in fertility. The map also indicates that the populations of other southern parishes such as Evangeline, Acadia, Jefferson Davis, Assumption, St. James, Lafourche, Plaquemines, and Pointe Coupee, are all very high in fertility. Only Catahoula, Franklin, Bienville, and Natchitoches in northern Louisiana have reproduction rates so high. Since these parishes form a large portion

of the area known as French Louisiana,[1] it would seem that French ethnic origin and Catholicism may be associated with high fertility. The French and non-French divisions[2] of the state are believed to be of

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[1] Smith signifies the importance of distinguishing between the French and non-French cultures as follows: "When Louisiana was acquired by the United States, the southern portion of the state was thickly settled by people of French descent and culture. The descendants of these people, the Louisiana French, today constitute a very important part of the state's population. To a greater extent than any other large group of non-English speaking people in the United States, the Louisiana French have maintained their language, culture, religion, and mode of living. In culture these people are sharply distinguished from their fellow citizens of northern Louisiana, among whom the Anglo-Saxon element predominates. The cultural contrasts between the north Louisiana and south Louisiana make the dichotomy into the French and the non-French one of the most important and widely used ways of classifying the population of the state." T. Lynn Smith, The Population of Louisiana: Its Composition and Changes (Baton Rouge: Louisiana Agricultural Experiment Station Bulletin 293, 1937), pp. 16-17.

[2] The division of French and non-French Louisiana used throughout this study is based on Smith's description of this area. He says: "Perhaps the area of French culture in Louisiana can be visualized more accurately from the following description. It resembles a large triangle whose base consists of the Gulf of Mexico. One side is bounded by a straight line running from the southwestern tip of the state to the junction of the Red and Mississippi Rivers, and the other side is bounded by a straight line running from the latter point through the city of New Orleans to the Gulf of Mexico. Except for a considerable French population in Avoyelles parish, and other French communities dotted along the Red River as far north as Natchitoches, relatively few French-settled local ties lie outside the area so described, and relatively few non-French aggregates are included within the limits set forth." Ibid., p. 17. The delineation of the French area based upon the distribution of French names is similar to Smith's generalized pattern. Meigs says: "French Louisiana as here delimited is approximately co-extensive with the southern Mississippi and Red River delta, floodplains, and lower terrace, the coastal marshlands, and, in spots, the southwestern prairie. Economic districts included within French Louisiana are the south central 'sugar bowl,' much of the southwestern rice, cattle, and cotton district, the trapping, fishing, and swamp lumbering areas, and part of the cotton district in the north." Peveril Meigs III, "An Ethno-Telephonic Survey of French Louisiana," Annals of the Association of American Geographers, XXXI (1941), pp. 245-246.

sufficient importance to serve as a basic classification in the analysis of fertility differentials.

Further examination of differences in fertility by parishes suggests two other important questions. First, what is the nature of the relationship between types of farming and reproduction rates, and second, what is the nature of the association between race and fertility? Although the need for a refinement of fertility data by wards is evident, Figure 7 suggests that the types of farming may be related to fertility. The population of the parishes included in the Mississippi delta cotton plantation section, for example, is characterized by extremely low fertility[3] in contrast to the Sugar Bowl section. Similarly, residents of parishes constituting the Gulf Coast Dairy-Trucking-Fruit area have low fertility when contrasted to those in the Sugar Cane parishes.

To one acquainted with the distribution of the Negro population in Louisiana, the possibility that race may be a principal factor in

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[3] The first detailed account of this phenomenon is to be found in Conrad Taeuber and Irene B. Taeuber, "Negro Rural Fertility Ratios in the Mississippi Delta," The Southwestern Social Science Quarterly, XXI (1940), 210-220. The writers show that fertility differences between the tiers of parishes adjacent to the Mississippi River and the tier immediately to the west, are real and not to be explained by defective statistics, underenumeration, differences in age composition of the mothers, infant mortality, or stillbirths.

the explanation of the parish differences is certain to occur.[4] (See Figure 8.) This figure shows that there are heavy concentrations of Negroes in the Mississippi delta parishes — Concordia, Tensas, Madison, and East Carroll. In the tier of parishes once removed from the delta — Catahoula, Franklin, Richland, and West Carroll — the proportions of Negroes are much lower. Although both groups of parishes are preponderantly rural and dependent upon cotton, the population of the former is characterized by low fertility while that of the latter is relatively high. This leads to the tentative hypothesis that a high proportion of Negroes in the population is associated with a low reproduction rate. However, further inspection of the map reveals that the populations of West Feliciana and Pointe Coupee parishes, each with a high proportion of Negroes, are also very high in fertility. Thus the data of Figures 7 and 8 suggest conflicting hypotheses and do not reveal the exact nature of the association between race and fertility.

Although Figure 7 is extremely useful for exploratory purposes,

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[4] Speaking of the association between Negroes and the plantation system in the Red River and upper Mississippi deltas, Smith says: "Agriculture in these areas is highly commercialized; the farm operators, or planters, are highly specialized business men; and large numbers of Negro families, 'share tenants' and croppers, are employed to do the manual labor. In view of this it is not surprising that these delta-cotton portions of Louisiana show an overwhelming proportion of Negroes in their populations. The large-scale, plantation system is also characteristic of the bluff or loess districts in East and West Feliciana, and of the better Upland Cotton districts (such as Claiborne, DeSoto and Morehouse parishes). These, too, are seen to be areas of heavy Negro concentration, owing largely, it would seem, to the plantation system." Smith, The Population of Louisiana: Its Composition and Changes, p. 8.

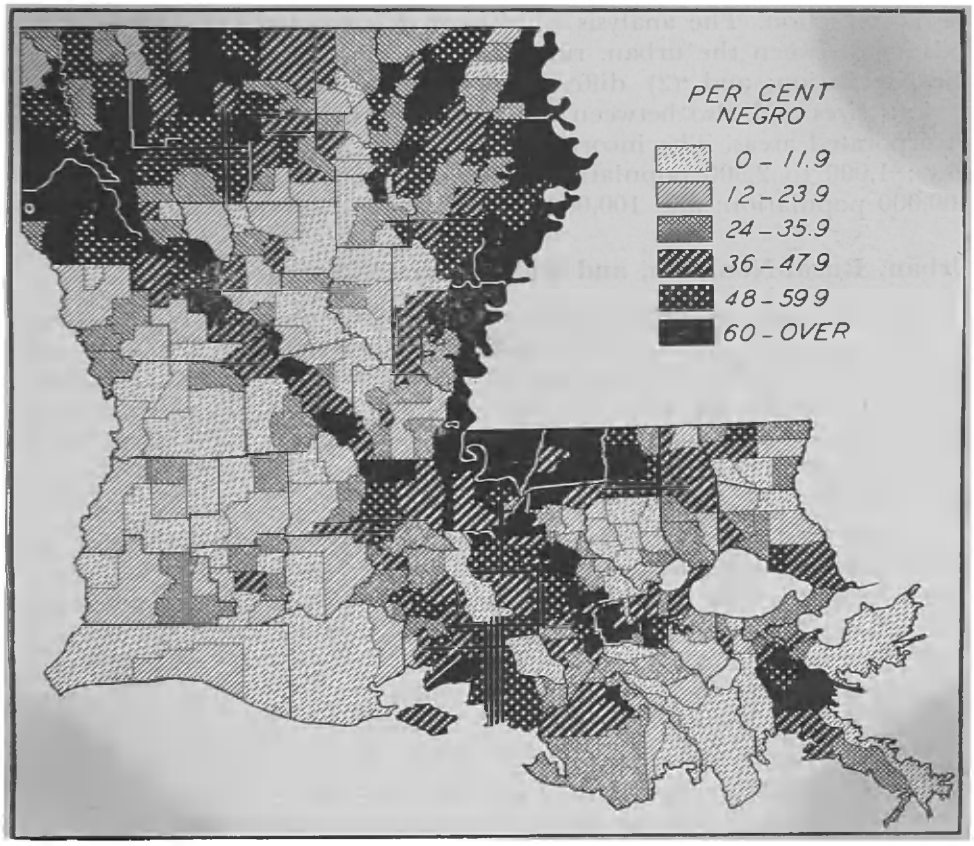

Figure 8. Distribution of the Negro Population in Louisiana, by Wards, 1940.

it emphasizes the necessity of dealing with fertility rates computed for the populations of smaller, more homogeneous territorial units. Even though very few census tabulations are available for minor civil divisions, the wards must be used as the units of comparison if we are to obtain a more refined picture of differential fertility. Accordingly, ratios were computed for the total populations of each of the 519 wards in Louisiana. These ratios were then classified into six groups, ranging in size from 344 or less to 665 or more. These data were then plotted on a base map of the state. (See Figure 9.)

For analytical purposes such a map is of great assistance, for a study of it by one acquainted with the demographic and economic topography of Louisiana suggests the factors which may be closely related to variations in fertility. From Figure 9 one may obtain a more refined idea of the leads which deserve to be investigated further. A number of elementary tests of relationships which will eliminate the necessity of wasting time on factors which offer little chance of contributing to an understanding of the variations in reproduction rates may also be made. This map shows that variations in fertility throughout Louisiana are tremendous. The population of some of the wards is reproducing at a rate more than five times that prevailing in other wards of the state.

The relationship between residence and the rate of reproduction, suggested by Figure 7, stands out clearly in Figure 9. All wards containing cities are the ones in which fertility is the very lowest. New Orleans, Shreveport, Baton Rouge, Alexandria, and Monroe, all stand out

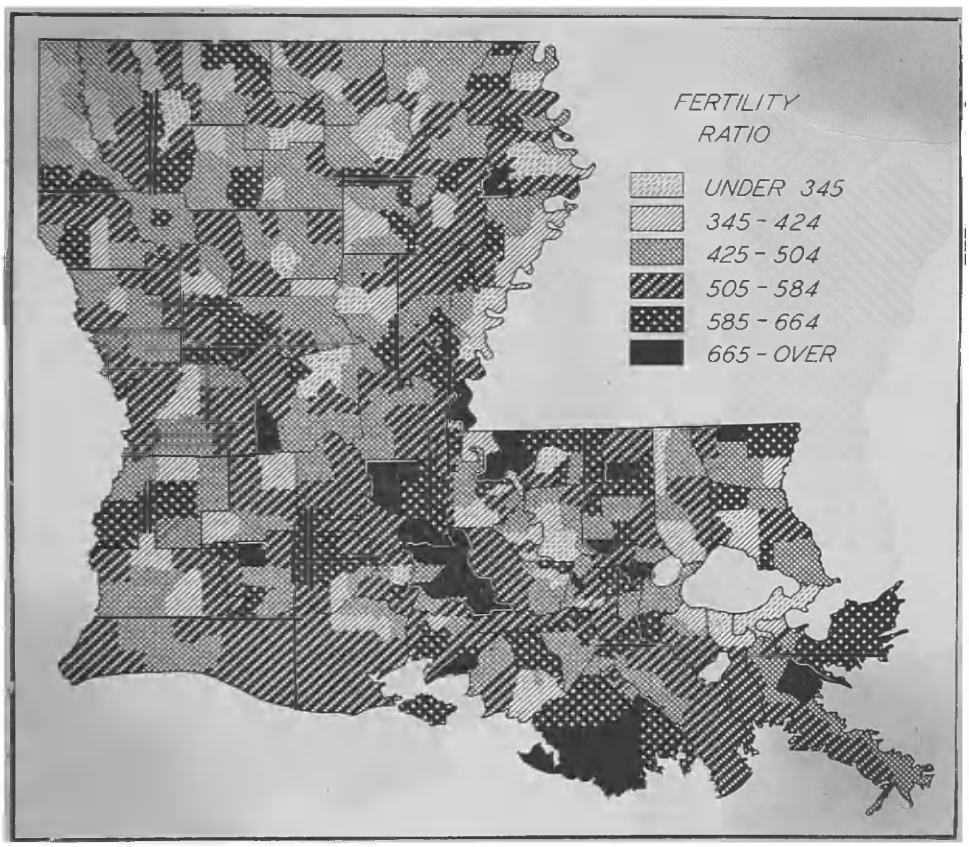

Figure 9. Variations in Fertility Ratios in Louisiana, by Wards, 1940.

conspicuously because of their very low reproduction rates. Likewise the cities having more than 10,000 population, Bogalusa, Gretna, Lafayette, Lake Charles, and New Iberia, all tend to lower the rates of reproduction in the wards in which they are located. This map also indicates that reproduction rates are low even in the wards containing the small towns and villages. On the other hand, the most isolated rural sections of Louisiana, the outlying wards in which there are no cities, towns, or villages, are those in which the very highest fertility ratios prevail. Thus, on the basis of the graphic portrayal of fertility data, the necessity of exploring thoroughly the relationship between residence and rate of reproduction is suggested.

Another hypothesis, suggested by Figure 7 and strongly supported by Figure 9, is that very high rates of reproduction are characteristic of French, Catholic Louisiana. Even after allowing for residential differences the population of the French portion of the state is strikingly high in fertility in contrast to that of the Anglo-Saxon, Protestant portion. Only four of the 26 wards in which fertility ratios are 665 or above are located outside of the French area. A much larger proportion of the population in southern than in northern Louisiana have fertility ratios of 505 or more. The sharp contrast in the fertility of French and non-French populations emphasized by Figures 7 and 9, therefore, gives rise to another association which seems to warrant detailed investigation.

A comparison of Figures 8 and 9 shows no clear-cut relationship between race and rates of reproduction. On the one hand, a very high

concentration of Negroes in the Mississippi and Red River deltas is associated with relatively low fertility; on the other, a very high concentration of Negroes in the Felicianas and in St. Helena Parish is associated with relatively high fertility. Added to this is the fact that in the southwestern portion of the state where the proportion of Negroes is consistently very low, rates of reproduction vary widely. Although the association between race and fertility, as suggested by the Figures, is not clear, these observations suggest that detailed study of the relationship is necessary.

The data in Figure 9 provides added support to the hypothesis that types of farming are related to the rate of reproduction. Figure 9 shows, for example, a striking contrast between the fertility of the populations in several tiers of wards adjacent to the Mississippi River and that of the tiers of wards to the west. The residents of the former are characterized by very low rates of reproduction while those of the latter are characterized by relatively high rates. The plantation system, so prevalent in the delta wards, is not as widespread in the wards comprising the backwater and spillway areas.

Figure 9 also indicates that the population of the wards comprising the Sugar Cane and Central Louisiana Mixed Farming areas is extremely fertile in comparison with the population in other types of farming areas. Furthermore, the population of a fairly extensive area in north central Louisiana, known as the Sand Hills, appears to be distinctly less fertile than the residents of areas characterized by different agricultural use. These observations, therefore, point to the association

between types of farming and rates of reproduction. Hence, it would seem that type of farming is another factor which merits detailed study.

The mapping procedures which have been used demonstrate conclusively that fertility varies widely in the state. They also suggest several of the more important factors which are probably closely related to rates of reproduction. Associations established by such mapping techniques generally are merely suggestive, rarely definitive. However, these methods are sufficient to demonstrate that, irrespective of race, ethnic origin, or type of farming, rates of reproduction of the population vary inversely with the size of the population aggregate. The analysis so far has indicated that ethnic origin and religion, race, and type of farming are other factors which may be closely associated with fertility. More detailed study, however, is necessary in order to determine the precise relationships between all these factors and rates of reproduction.

CHAPTER V

RESIDENTIAL DIFFERENTIALS IN FERTILITY

The association between residence and fertility in Louisiana is so close that even the exploratory mapping procedures described in the preceding chapter were sufficient to demonstrate the nature of the relationship. Although these procedures were intended to be preliminary and suggestive, the rural-urban differential is so pronounced that it is evident even when large heterogeneous parish units are used as the basis of comparison. In order to investigate the nature of the relationship more thoroughly, it is desirable to proceed with the analysis using smaller and more homogeneous units, the wards. The objective of this chapter, therefore, is to investigate in detail the precise nature of the relationships between residence and rates of reproduction. It is our specific purpose to study the nature of fertility differentials existing between: (1) the urban, rural-nonfarm, and rural-farm segments of the population, and (2) the population of unincorporated and the population of incorporated centers, grouped according to the size of aggregate as follows: 1,000 to 2,500 population, 2,500 to 10,000 population, 10,000 to 100,000 population, and 100,000 population and over.

A. Urban, Rural-Nonfarm, and Rural-Farm Differentials. The basic residential categories used by the Bureau of the Census are three in number, the urban, rural-nonfarm, and rural-farm groups. The first embraces all incorporated centers with 2,500 or more inhabitants; the third embodies all tracts of land classified as farms; and the second includes everything between the two. It is our purpose in this section

of the chapter to study variations in fertility among the population of these three residential groups.

For the entire state of Louisiana, rates of reproduction are low in the urban centers, higher among rural-nonfarm areas, and highest in the rural-farm portions of the state. As shown in Table VIII, fertility ratios for the three residential groups are 258, 430, and 546, respectively. These are tremendous differences and there seems to be no doubt of their significance. Nevertheless, in order to eliminate all possibility of doubt, it is necessary to hold constant other related factors such as race, ethno-religious influence, and type of farming.

When fertility ratios were computed for the three residential groups in Louisiana according to race, it was found that fertility varied inversely with the degree of urbanity of population for both whites and Negroes. Thus, the fertility ratios for whites varied from a low of 256 in the urban population, to 434 among rural-nonfarm residents, and to a high of 506 for the rural-farm population. Among the Negroes the rates of reproduction for the three residential groups in the state were 261, 421, and 595, respectively. Table VIII indicates that the rates of reproduction of white rural-nonfarm residents are more nearly like those of the rural-farm than those of the urban residents. Rural-nonfarm Negroes, on the other hand, are reproducing at a rate more nearly comparable to that of urban than of rural-farm Negroes.

A study of the rates of reproduction for the three residence groups in the 64 parishes of the state reveals wide variations. The residents

TABLE VIII

FERTILITY RATIOS BY RESIDENCE FOR ETHNO-RELIGIOUS AND TYPES OF FARMING AREAS IN LOUISIANA, ACCORDING TO RACE, 1940

Area and Race	Fertility Ratios by Residence			
	Total	Urban	Rural-Nonfarm	Rural-Farm
Louisiana				
Both	386	258	430	546
White	367	256	434	506
Negro	418	261	421	595
French Louisiana				
Both	479	344	474	574
White	445	340	459	511
Negro	554	356	518	682
Non-French Louisiana				
Both	400	244	392	530
White	391	259	411	502
Negro	411	221	354	558
Upland Cotton				
Both	427	262	406	553
White	400	276	424	482
Negro	467	240	368	637
Delta Cotton				
Both	398	237	377	539
White	392	252	393	538
Negro	406	216	344	540
Rice				
Both	456	342	502	549
White	447	334	497	517
Negro	487	363	522	748
Cane				
Both	495	358	505	568
White	472	361	498	526
Negro	536	352	520	618
Small Fruits and Vegetables				
Both	416	320	418	486
White	398	320	394	464
Negro	466	317	493	544

of some parishes are twice as fertile as those of other parishes. This is true for each residence group and for both racial groups. In order to show this variation, a series of maps showing fertility by parish was drawn. Fertility ratios for rural-farm whites and rural-nonfarm whites in all parishes were classified and plotted on an outline map of the state. See Figures 10 and 11. A similar procedure was followed for the rural-farm Negroes and the rural-nonfarm Negroes. See Figures 12 and 13. Comparable maps for the urban population were not drawn since this information is presented in more precise form in Figures 15 and 16. The precise fertility indexes for each parish, according to residence and race, are presented in Table IX.

In spite of considerable variation in the fertility of population from parish to parish, a comparison of the rural-farm maps (Figures 10 and 12) with the rural-nonfarm maps (Figures 11 and 13), shows distinctly higher rates or reproduction among the rural-farm population. Figure 10 indicates that the rural-farm white populations in 15 parishes are reproducing at a rate in excess of 545. In comparison, Figure 11 shows that the rural-nonfarm white populations of only five parishes have rates this high. The residential differential among the Negroes of the state is even more striking than that for the whites. The rural-farm Negroes in 45 of the parishes have rates of reproduction of 545 or above. (See Figure 12.) In comparison, the rural-nonfarm Negroes in only 12 parishes have equivalent fertility rates. (See Figure 13.)

Figures 11 and 13 which show rates of reproduction among white and Negro rural-nonfarm residents reveal another important factor

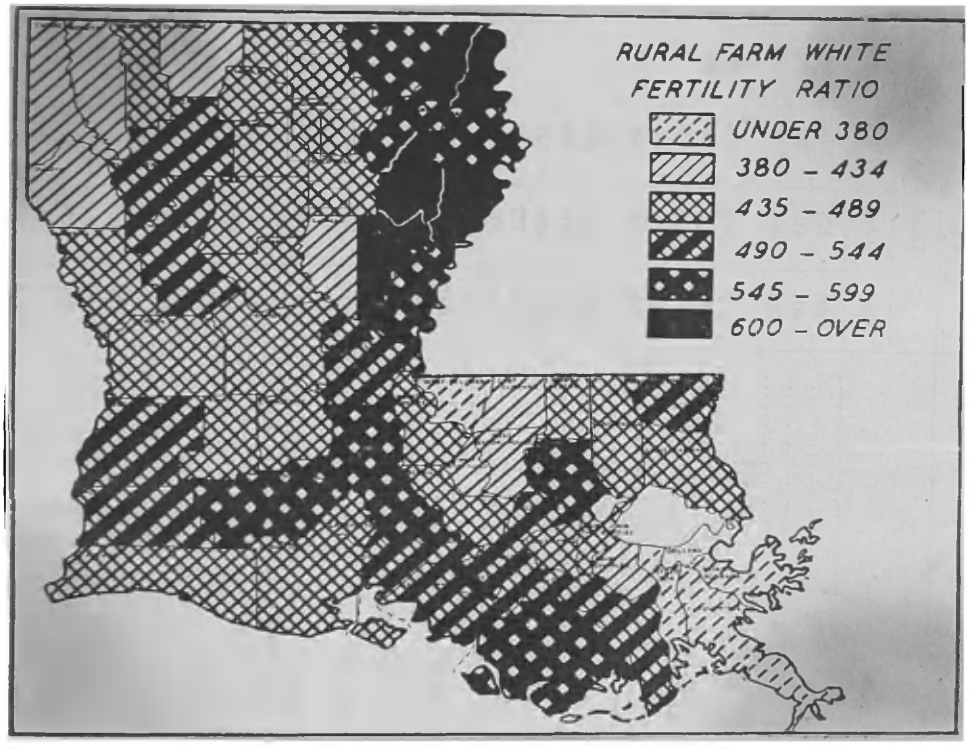

Figure 10. Fertility Ratios of Rural-Farm Whites in Louisiana, by Parishes, 1940.

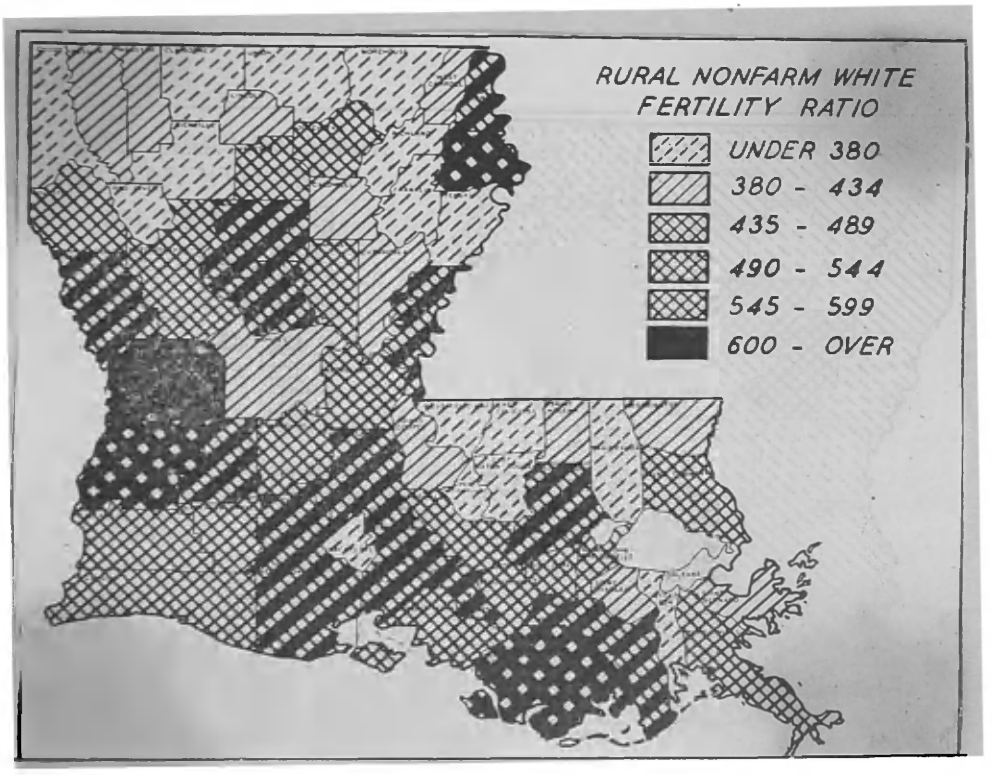

Figure 11. Fertility Ratios of Rural-Nonfarm Whites in Louisiana, by Parishes, 1940.

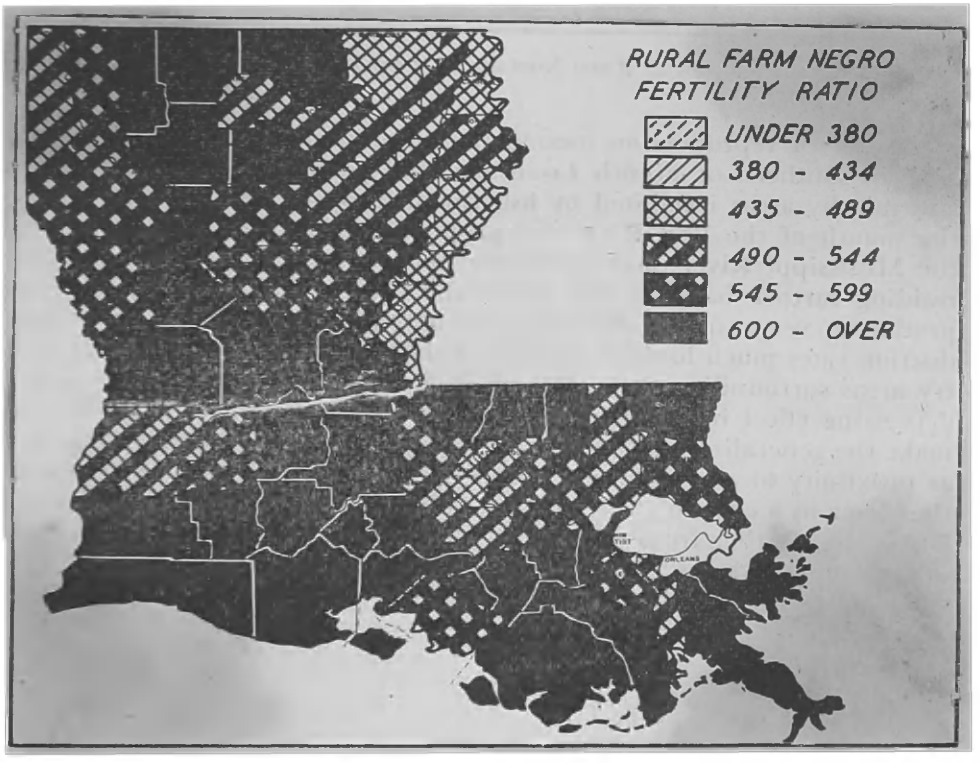

Figure 12. Fertility Ratios of Rural-Farm Negroes in Louisiana, by Parishes, 1940.

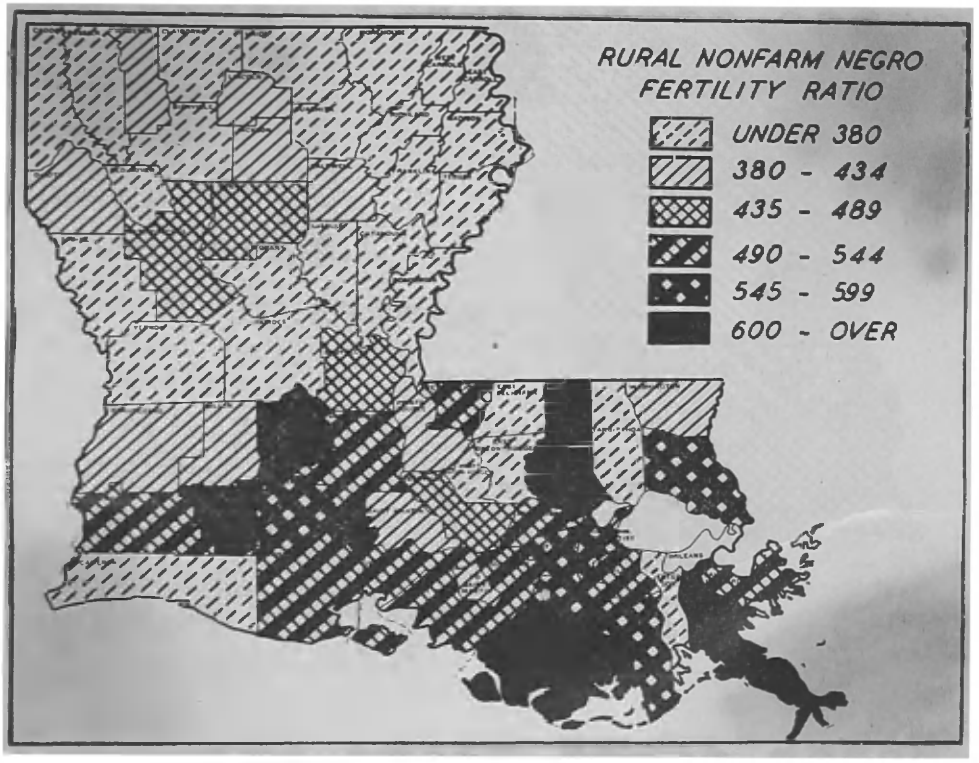

Figure 13. Fertility Ratios of Rural-Nonfarm Negroes in Louisiana, by Parishes, 1940.

TABLE IX

FERTILITY RATIOS BY RESIDENCE FOR PARISHES IN LOUISIANA, ACCORDING TO RACE, 1940

Parish	Fertility Ratios by Residence and Race											
	Total			Urban			Rural-Nonfarm			Rural-Farm		
	Total	White	Negro	Total	White	Negro	Total	White	Negro	Total	White	Negro
Acadia	503	490	564	360	343	405	515	510	567	606	575	807
Allen	452	469	407	333	356	281	487	526	417	497	484	571
Ascension	481	462	513	296	276	338	516	524	505	541	510	594
Assumption	528	474	608	-	-	-	480	452	525	573	496	680
Avoyelles	498	465	591	320	332	289	465	461	478	548	492	705
Beauregard	457	479	362	312	314	310	522	557	402	520	521	500
Bienville	502	431	576	-	-	-	314	287	350	595	515	668
Bossier	432	369	491	314	312	319	378	386	357	513	413	546
Caddo	282	268	299	219	232	199	371	370	373	490	393	517
Calcasieu	401	400	403	311	308	317	499	489	538	526	493	671
Caldwell	438	430	459	-	-	-	385	385	386	487	470	527
Cameron	492	477	672	-	-	-	483	488	333	500	468	748
Catahoula	516	547	466	-	-	-	353	420	236	588	604	561
Claiborne	450	345	529	233	255	210	303	298	315	548	411	613
Concordia	399	476	365	220	288	187	415	490	369	472	570	437
De Soto	484	501	528	300	324	272	429	444	412	541	421	584
East Baton Rouge	292	297	284	204	207	200	339	367	295	458	383	527
East Carroll	430	581	368	241	381	169	334	505	257	502	673	438
East Feliciana	403	199	511	73	91	44	312	264	354	619	393	661
Evangeline	528	458	785	406	372	605	495	462	675	564	479	830

TABLE IX (Continued)

Parish	Fertility Ratios by Residence and Race											
	Total			Urban			Rural-Nonfarm			Rural-Farm		
	Total	White	Negro	Total	White	Negro	Total	White	Negro	Total	White	Negro
Franklin	511	545	463	244	273	206	310	321	288	571	609	517
Grant	467	478	436	-	-	-	465	495	360	469	450	598
Iberia	447	432	474	348	355	334	520	510	539	568	525	628
Iberville	438	418	457	296	313	263	446	447	444	509	476	530
Jackson	428	411	464	253	286	149	425	446	385	515	440	651
Jefferson	341	340	345	328	337	295	349	345	373	287	268	500
Jefferson Davis	501	464	620	409	383	482	483	442	607	600	549	812
Lafayette	409	361	518	293	284	317	424	377	607	555	466	714
Lafourche	510	500	569	377	376	377	521	515	598	558	535	647
LaSalle	416	426	359	-	-	-	423	445	322	401	388	571
Lincoln	405	376	437	258	252	264	418	431	396	495	448	538
Livingston	553	545	596	-	-	-	557	538	658	551	549	558
Madison	404	475	375	236	314	202	393	551	278	520	586	496
Morehouse	401	415	392	240	301	164	313	370	222	506	568	485
Nachitoches	504	466	544	280	275	285	455	460	444	596	540	644
Orleans	239	225	269	239	225	269	-	-	-	-	-	-
Ouachita	304	323	276	235	256	204	421	440	351	485	472	500
Plaquemines	535	436	676	-	-	-	531	460	658	542	372	702
Pointe Coupee	500	441	545	-	-	-	401	394	411	534	467	574
Rapides	359	348	378	266	272	256	371	380	347	537	471	618
Red River	490	449	530	-	-	-	356	363	338	529	493	556
Richland	481	503	456	-	-	-	290	336	238	542	557	526
Sabine	482	496	431	-	-	-	463	506	361	501	489	572
St. Bernard	440	422	520	-	-	-	449	434	513	360	325	619
St. Charles	444	402	549	-	-	-	443	406	544	447	381	570

TABLE IX (Continued)

Parish	Fertility Ratios by Residence and Race											
	Total			Urban			Rural-Nonfarm			Rural-Farm		
	Total	White	Negro	Total	White	Negro	Total	White	Negro	Total	White	Negro
St. Helena	602	471	721	-	-	-	493	421	689	619	485	723
St. James	520	465	580	-	-	-	506	463	555	544	469	620
St. John the Baptist	499	436	576	-	-	-	484	435	554	554	444	633
St. Landry	584	503	682	377	368	393	512	497	537	691	577	797
St. Martin	581	535	667	402	397	410	517	535	430	660	575	775
St. Mary	468	431	514	381	372	401	485	477	497	570	518	594
St. Tammany	437	406	503	312	288	360	513	471	579	476	454	593
Tangipahoa	405	401	415	311	311	311	354	350	363	471	459	496
Tensas	445	524	413	-	-	-	278	330	244	503	634	461
Terrebonne	548	525	613	384	388	361	607	593	651	622	590	672
Union	466	420	550	-	-	-	312	289	349	522	465	628
Vermillion	460	443	570	367	347	450	521	518	536	482	455	742
Vernon	477	497	363	281	291	257	555	606	360	495	489	625
Washington	449	443	462	356	386	300	414	417	409	569	515	689
Webster	425	395	464	281	311	236	422	425	413	541	455	604
West Baton Rouge	414	382	435	-	-	-	372	368	378	447	409	458
West Carroll	547	575	456	-	-	-	359	408	246	601	619	539
West Feliciana	573	348	639	-	-	-	435	335	502	630	362	679
Winn	406	424	363	232	259	196	513	541	438	476	449	592

bearing upon residential differences. For both whites and Negroes, the parishes containing large proportions of suburban residents are invariably low in fertility. For example, the populations of East Baton Rouge, Caddo, Rapides, and Jefferson parishes are found to be among the lowest in fertility.

In an effort to hold the ethno-religious factor constant in the study of differentials for the three residence groups, fertility ratios were calculated separately for the urban, rural-nonfarm, and rural-farm groups, by color, in French and non-French Louisiana.[1] Although differences are observable in the rates of reproduction of the population in the two areas, the inverse relationship between fertility and density of population holds true for both French and non-French areas. (See Table VIII.) In both French and non-French areas, fertility ratios are clearly lowest for both whites and Negroes in urban areas, and distinctly highest in the rural-farm areas. The rates of reproduction for the rural-nonfarm inhabitants are intermediate for both races in each area. In both of the ethno-religious areas, the white rural-nonfarm populations

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[1] Since the necessary data according to color are not available on a minor civil division basis, French Louisiana was delimited according to parish boundaries. The French area, as used here, was taken to include the following parishes: Acadia, Ascansion, Assumption, Avoyelles, Cameron, Calcasieu, Evangeline, Iberia, Iberville, Jefferson, Lafayette, Lafourche, Plaquemines, Point Coupee, St. Bernard, St. Charles, St. James, St. John the Baptist, St. Landry, St. Martin, St. Mary, Terrebonne, Vermillion, and West Baton Rouge. Orleans parish, coextensive with the city of New Orleans, was excluded from consideration since it would unduly "weight" either of the categories.

are reproducing at rates more nearly like those of rural-farm than those of urban populations. Rural-nonfarm Negroes in both French and non-French areas, on the other hand, are reproducing at rates more characteristic of urban populations. When the factors of ethnic origin and religion are held constant, therefore, the direct relationship between degree of rurality and rate of reproduction persists.

Since type of farming may influence the pattern of fertility differentials with respect to residence, this factor must also be held constant. Because fertility ratios cannot be computed separately for whites and Negroes by wards, it was necessary to follow parish lines in delimiting the types of farming areas.[2] Therefore, fertility ratios were computed separately for the three residence groups by color, in the five types of farming areas. Table VIII presents a summary of fertility ratios for each of the types of farming areas. The familiar

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[2] A simplified classification of type of farming in the state must be used here because of the necessity of computing fertility by color groups. Smith's classification used in this section is as follows: (1) Upland Cotton - Beauregard, Bienville, Caldwell, Cameron, Claiborne, DeSoto, East Baton Rouge, East Feliciana, Evangeline, Grant, Jackson, Lafayette, LaSalle, Lincoln, Morehouse, Ouachita, Sabine, St. Helena, St. Landry, Union, Vernon, Washington, Webster, West Feliciana, and Winn; (2) Delta Cotton - Avoyelles, Bossier, Caddo, Catahoula, Concordia, East Carroll, Franklin, Madison, Natchitoches, Pointe Coupee, Rapides, Red River, Richland, Tensas, and West Carroll; (3) Rice - Acadia, Allen, Calcasieu, Jefferson Davis, and Vermillion; (4) Cane - Ascension, Assumption, Iberia, Iberville, Lafourche, St. James, St. John the Baptist, St. Martin, St. Mary, Terrebonne, and West Baton Rouge; (5) Small Fruits and Vegetables - Jefferson, Livingston, Plaquemines, St. Bernard, St. Charles, St. Tammany, and Tangipahoa. T. Lynn Smith, The Growth of Population in Louisiana 1890 to 1930 (Baton Rouge: Louisiana Agricultural Experiment Station Bulletin 264, 1935), pp. 4-5.

residential differential of low urban, intermediate rural-nonfarm, and high rural-farm fertility ratios is clearly visible when this classification is made. For all types of farming areas and for both races, rates of reproduction are lowest in the urban population, intermediate in the rural-nonfarm population, and highest in the rural-farm population. As was pointed out previously, fertility ratios for rural-nonfarm whites approach the rural-farm rates in magnitude, while those for rural-nonfarm Negroes tend to be more nearly like the urban rates. Except for the Delta Cotton area, this tendency is true of rates of reproduction of rural-nonfarm whites. In the case of rural-nonfarm Negroes, the Cane area and the Small Fruits and Vegetables area prove to be exceptions to the usual tendency.

Thus the analysis indicates the fundamental importance of residence in relation to the rate of reproduction. When the census classification of urban, rural-nonfarm and rural farm is used, fertility proves to vary directly with degree of rurality for both races in: (1) the state as a whole, (2) French and non-French Louisiana, and (3) all types of farming areas.

B. Differentials by Size of Population Aggregate. Differences in fertility according to residence may be studied in a somewhat more refined manner by classifying the aggregates by size. Rates of reproduction may be obtained for unincorporated and incorporated territory, thus affording a great deal of refinement especially in the urban residence category. The following classification of the population, for which fertility ratios were computed, will be used: (1) unincorporated

territory, (2) large villages of 1,000 to 2,500 population, (3) towns of 2,500 to 10,000 population, (4) cities of 10,000 to 100,000 population, and (5) cities of 100,000 population or over. For all these groups except the first two, data are available for the computation of reproduction rates by race.

1. Population of Unincorporated Territory. Although possessing a much higher rate of reproduction than any of the incorporated population groups, fertility of the unincorporated population varies widely throughout the state. In order to show this variation, the populations of all incorporated places were subtracted from the total populations of each of the wards in the state. Fertility ratios for this "strictly rural" portion of the population were then calculated, classified, and plotted on a base map of the state. (See Figure 14.)

A study of this map shows that the populations of wards adjacent to cities are low in fertility, while the inhabitants of the more distant, isolated wards are high in fertility. The depressing effect of cities upon the fertility of the population of the surrounding unincorporated territory gradually diminishes as distance from the center increases. This tendency is well illustrated in the Baton Rouge and Alexandria areas. The map also reveals a generally high rate of reproduction in southern French Louisiana, especially in the swamp and marsh areas. The populations of the wards adjacent to the Mississippi River have very low rates of reproduction, while the populations of the wards removed some distance from the river, embracing the backwater and spillway areas, are extraordinarily high in fertility.

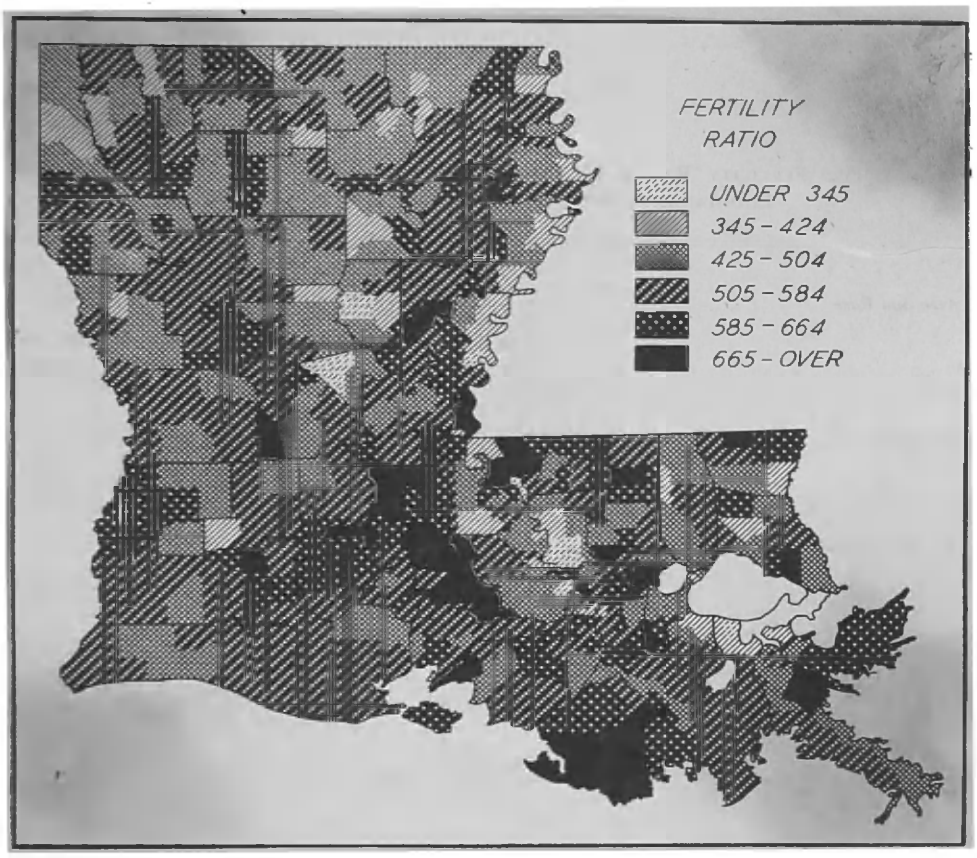

Figure 14. **Fertility Ratios of the Population of Unincorporated Areas in Louisiana, by Wards, 1940.**

The rate of reproduction in the unincorporated portions of Louisiana is nearly twice as high as that in the incorporated portions, exclusive of New Orleans. The fertility ratio for the population residing in unincorporated areas is 510, as compared with an index of only 286 for all the incorporated population aggregates. The populations of unincorporated territory in both French and non-French areas, and in each of the types of farming areas, have reproduction rates far in excess of the populations of incorporated territory. (See Table X.) In each instance, the fertility ratio for the residents of unincorporated areas exceeds that for the residents of incorporated areas by more than 30 per cent.

2. Population of Incorporated Territory. As shown previously, populations of incorporated centers have distinctly lower rates of reproduction than those living in unincorporated areas. The precise relationship between size of population aggregate and fertility remains to be studied. The initial step in investigating this relationship was to calculate the fertility ratio for the total population of each of the 112 incorporated centers in the state. These ratios were then classified according to size and plotted on an outline map of the state. Each aggregate with a total population of 1000 or more was plotted, the circle representation varying in area according to the size. Each circle was then cross-hatched in accordance with the rate of reproduction of the inhabitants of the aggregate. (See Figure 15.)

Observation of this figure reveals at once an inverse relationship between fertility and size of population aggregate. The residents

TABLE X

FERTILITY RATIOS IN INCORPORATED CENTERS BY SIZE AND IN UNINCORPORATED TERRITORY WITHIN ETHNO-RELIGIOUS AND TYPES OF FARMING AREAS IN LOUISIANA, ACCORDING TO RACE, 1940

Area and Race	Fertility Ratios by Residence					
	Unincorporated Territory	Incorporated Centers	1000-2500	2500-10,000	10,000-100,000	100,000 or more
Louisiana						
Both	510	265	343	317	247	239
White	-	-	-	330	256	225
Negro	-	-	-	290	232	269
French Louisiana						
Both	538	353	389	371	303	-
White	-	-	-	365	297	-
Negro	-	-	-	387	318	-
Non-French Louisiana						
Both	491	251	306	269	230	-
White	-	-	-	292	243	-
Negro	-	-	-	237	212	-
Upland Cotton						
Both	507	268	336	276	246	-
White	-	-	-	295	256	-
Negro	-	-	-	244	230	-
Delta Cotton						
Both	501	247	320	275	227	-
White	-	-	-	308	238	-
Negro	-	-	-	237	210	-

TABLE X (Continued)

Area and Race	Fertility Ratios by Residence					
	Unincorporated Territory	Incorporated Centers	1000-2500	2500-10,000	10,000-100,000	100,000 or more
Cane						
Both	546	361	376	366	338	-
White	-	-	-	363	353	-
Negro	-	-	-	371	307	-
Rice						
Both	552	355	399	372	294	-
White	-	-	-	361	273	-
Negro	-	-	-	407	325	-
Small Fruits and Vegetables						
Both	456	318	313	331	296	-
White	-	-	-	337	291	-
Negro	-	-	-	319	313	-

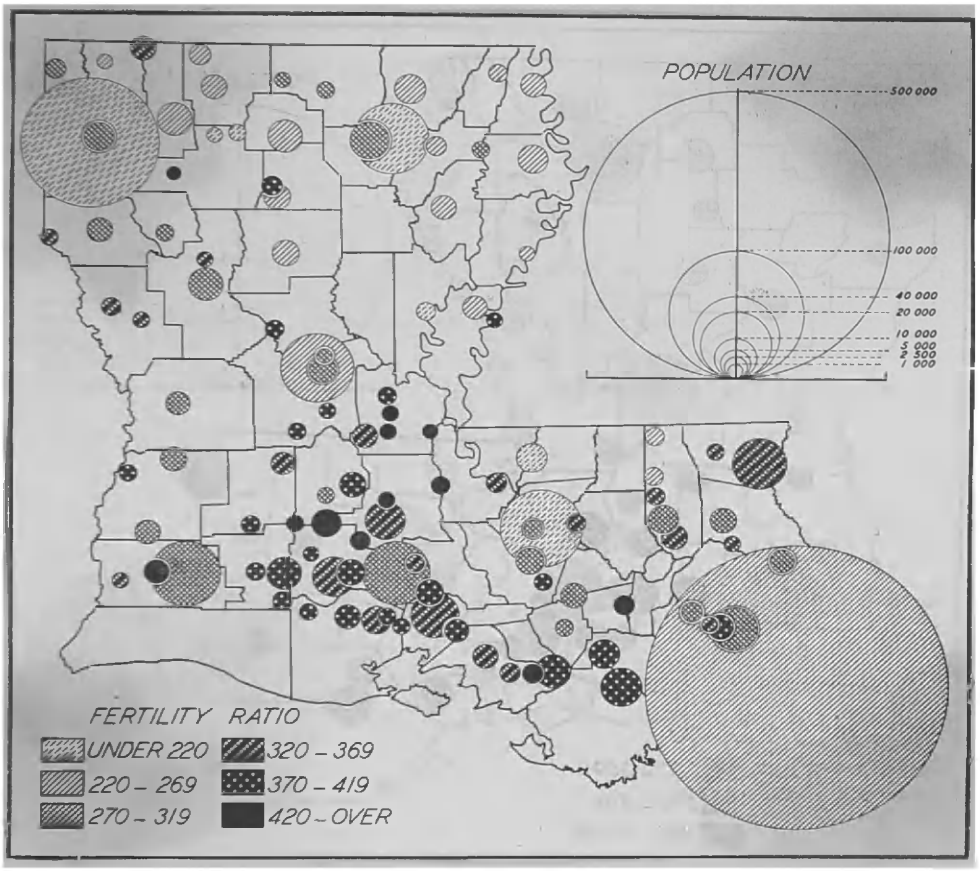

Figure 15. Fertility Ratios in Incorporated Centers of 1000 Population or More in Louisiana, by Size, 1940.

of New Orleans, Shreveport, Baton Rouge, and Alexandria are all very low in fertility. The populations of the smallest aggregates, on the other hand, are ordinarily among the highest in fertility. It will also be noted from this figure that the residents of villages and towns in the French portion of the state, irrespective of size, are characterized by higher rates of reproduction than those in non-French Louisiana. But even here it appears that the rate of reproduction decreases as the size of urban aggregate increases. To test this relationship, it is necessary to hold constant such variables as race, ethnoreligious influences, and type of farming.

In order to isolate the racial variable in the study of residential differentials in fertility, rates of reproduction were computed separately for whites and Negroes in all urban places with populations of 2500 or over. These ratios were then classified and plotted on an outline map of the state as in Figure 15. The area of the circle not only represents the size of population but also the proportion of whites and the proportion of Negroes. The segment representing Negro population is marked by a heavy line starting at nine o'clock and moving clockwise. (See Figure 16.)

A study of this figure indicates that rates of reproduction for both whites and Negroes decline with increasing size of the urban aggregate. Reference to Table X lends precision to this visual perception of the relationship. For the entire state, the rate of reproduction decreases for both whites and Negroes as the size of the

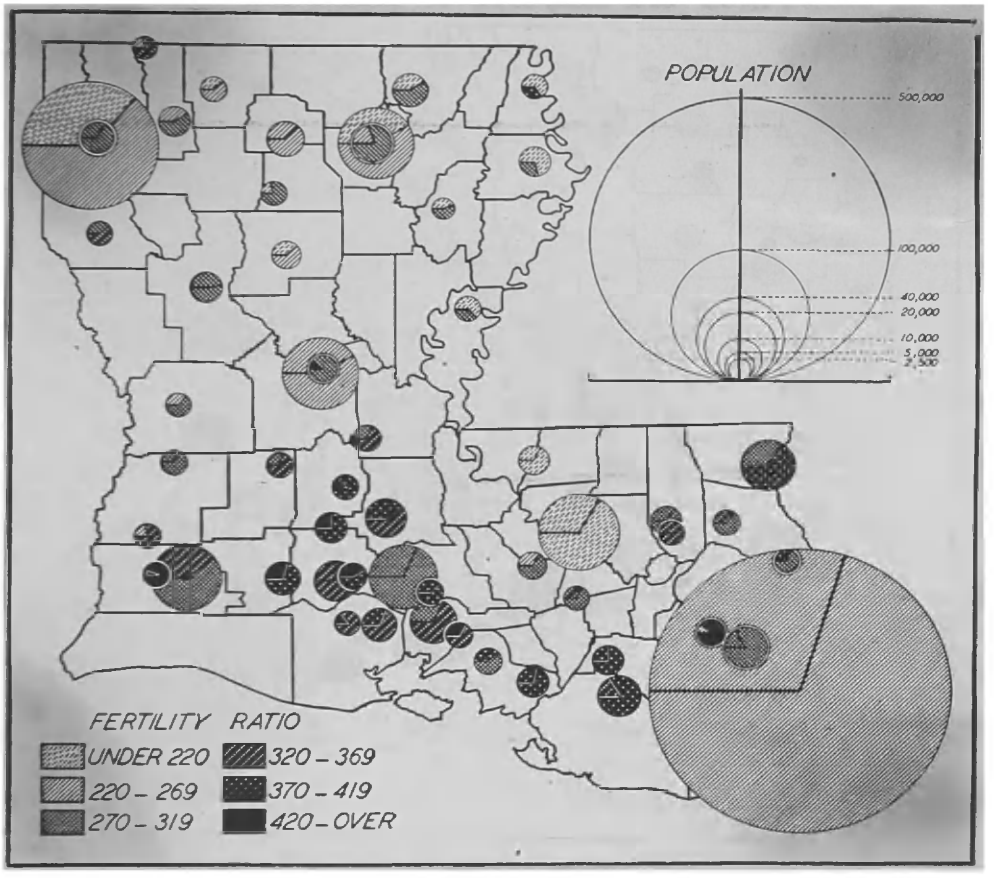

Figure 16. Fertility Ratios in Incorporated Centers of 2500 Population or More in Louisiana, by Size of Center and Race, 1940.

aggregate increases. One exception is to be found in the case of New Orleans Negroes, who have a higher fertility rate than Negroes in cities with populations between 10,000 and 100,000.

When fertility ratios were calculated separately for the populations of incorporated aggregates in French and non-French areas, the rate of reproduction was found to decrease for both races in each of the areas as size of population aggregates increased. A complete comparison by color is impossible since data for each race are not available for unincorporated territory or for towns having from 1000 to 2500 population. Fertility ratios for the total population of both areas, however, declined markedly as the size of urban aggregate increased.

The inverse relationship between fertility and size of population aggregate was found to hold true when fertility rates were computed separately for the five types of farming areas. (See Table X.) For the total population, the rate of reproduction steadily declined for all areas except for the Small Fruits and Vegetables area where the fertility rate for aggregates having 1000 to 2500 population was lower than those for aggregates having 2500 to 10,000 population. For both whites and Negroes in the five types of farming areas, fertility rates in cities having between 2500 and 10,000 population were higher than for those in cities having between 10,000 and 100,000 population.

The foregoing analysis emphasizes throughout the inverse relationship between the rate of reproduction and density of population. In the most remote, isolated portions of Louisiana extremely high rates of reproduction prevail. In the small hamlets and villages, fertility

rates are somewhat lower, while in the highly urbanized centers, reproduction rates are the very lowest to be found in the state. Among the more important findings with respect to residential differences in fertility, the following may be enumerated:

1. Rural-farm residents are characterized by the very highest rates of reproduction, rural-nonfarm residents are characterized by intermediate rates, and urban residents are characterized by the lowest rates of all. This relationship proves true for both whites and Negroes, for both French and non-French Louisiana, and for each of the five types of farming areas.

2. Residents of the unincorporated portions of Louisiana are characterized by much higher fertility ratios than those of the incorporated portions.

3. Among the incorporated centers, rates of reproduction vary inversely with the size of the population aggregate. Fertility ratios become progressively smaller as the size of the center increases from villages having from 1000 to 2500 population, to those having from 2500 to 10,000 population, to those having between 10,000 and 100,000 population, and to those having 100,000 population or more. This relationship is characteristic of both racial groups, of both French and non-French sections, and of the types of farming areas, with minor exceptions.

CHAPTER VI

RACIAL DIFFERENTIALS IN FERTILITY

It was suggested in the introductory chapter that rates of reproduction may be associated with race. Preliminary mapping procedures, however, failed to suggest the nature of the relationship between these two factors. In areas such as the Mississippi delta plantation area where Negroes are heavily concentrated, fertility rates were found to be extraordinarily low. On the other hand, in the Feliciana plantation area where the proportion of Negroes is also high, fertility rates were very high. Other observations also confirmed the necessity of investigating thoroughly the exact relationship between race and fertility.

A. Differences by Residence. If residential differences are disregarded, the rate of reproduction for the total white population of Louisiana is considerably below that for the total Negro population. As shown in Table XI, whites in the state have a fertility index of 367, compared with 418 for the Negroes. When fertility ratios were calculated for the three residential groups in the state, however, in the rural-farm group only are Negroes decidedly more fertile than the whites. Although urban Negroes are characterized by slightly higher fertility than white, they are less fertile than white rural-nonfarm residents.

In order to study racial differentials in more homogeneous units than the entire state, fertility ratios were computed for the 64 parishes. These ratios were computed for both races in the urban,

TABLE XI

FERTILITY RATIOS BY RACE FOR ETHNO-RELIGIOUS AND TYPES OF FARMING AREAS IN LOUISIANA, ACCORDING TO RESIDENCE, 1940

Area and Residence	Fertility Ratios by Race		
	Total	White	Negro
Louisiana			
Total	386	367	418
Urban	258	256	261
Rural-Nonfarm	430	434	421
Rural-Farm	546	506	596
French Louisiana			
Total	479	445	554
Urban	344	340	356
Rural-Nonfarm	474	459	518
Rural-Farm	574	511	682
Non-French Louisiana			
Total	400	391	411
Urban	244	259	221
Rural-Nonfarm	392	411	354
Rural-Farm	530	502	558
Upland Cotton			
Total	427	400	467
Urban	262	276	240
Rural-Nonfarm	406	424	482
Rural-Farm	553	482	637
Delta Cotton			
Total	398	392	406
Urban	237	252	216
Rural-Nonfarm	377	393	344
Rural-Farm	539	538	540
Rice			
Total	456	447	487
Urban	342	334	363
Rural-Nonfarm	502	497	522
Rural-Farm	549	517	748
Cane			
Total	495	472	536
Urban	358	361	352
Rural-Nonfarm	505	498	520
Rural-Farm	568	526	618
Small Fruits and Vegetables			
Total	416	398	466
Urban	320	320	317
Rural-Nonfarm	418	394	493
Rural-Farm	486	464	544

rural-nonfarm, and rural-farm populations of each parish. An examination of these indices (Table IX) reveals that neither whites nor Negroes are consistently higher in fertility. Of the 41 parishes having urban population, Negroes are found to be more fertile than whites in only 16; of the 63 parishes having rural-nonfarm population, Negroes in about half, or 32 parishes, have higher reproduction rates than whites; and of the 63 parishes having rural-farm population, Negroes in more than three fourths, or 53 parishes, are more fertile than whites.

The racial differential among urban residents of Louisiana may be shown graphically for each urban aggregate of 2500 population or more. Fertility ratios were calculated separately for the white and Negro residents of each city having at least 2500 persons. These ratios were then classified and plotted on a base map of the state. The area of the circle represents the size of the total population and the heavy line, starting at nine o'clock and moving clockwise, represents the proportion of Negro population. (See Figure 16.)

Observation of this figure shows the relationship between whites and Negroes with respect to reproduction rates for every urban aggregate in the state having 2500 population or more. A study of these differentials reveals that whites are generally more fertile than Negroes in the largest urban centers. The whites also have higher rates of reproduction in nearly all northern Louisiana cities. The Negroes in the cities of the French portion of the state, however, are

generally more fertile than the whites.

Of the 54 urban aggregates, whites are more fertile than Negroes in 29. In the 44 cities having less than 10,000 population, whites are more fertile than Negroes in 23. For cities of this size, the white ratio is 330, as compared with 290 for Negroes. (See Table X.) In the 10 large cities with populations over 10,000, Negroes possess higher rates of reproduction in only four. In cities having between 10,000 and 100,000 population, the white fertility ratio is 256, compared with 232 for Negroes. In New Orleans, however, the rate for whites is only 225 as compared with 269 for Negroes.

In order to study fertility differentials by race in the rural-nonfarm population, fertility ratios were plotted for each parish on a base map of the state, as shown in Figure 17. The area of each circle represents total rural-nonfarm population, and as in the previous figure, the proportion of Negroes is indicated by a heavy line starting at nine o'clock and moving clockwise.

Observation of this map indicates that neither rural-nonfarm whites nor Negroes are consistently higher in fertility. Rural-nonfarm whites in northern Louisiana generally possess higher rates of reproduction than the rural-nonfarm Negroes. In southern Louisiana, on the other hand, rural-nonfarm whites generally have lower rates of reproduction than the Negroes. Of the 63 parishes in the state having rural-nonfarm population, whites in 31, or in about half, have higher fertility rates than Negroes.

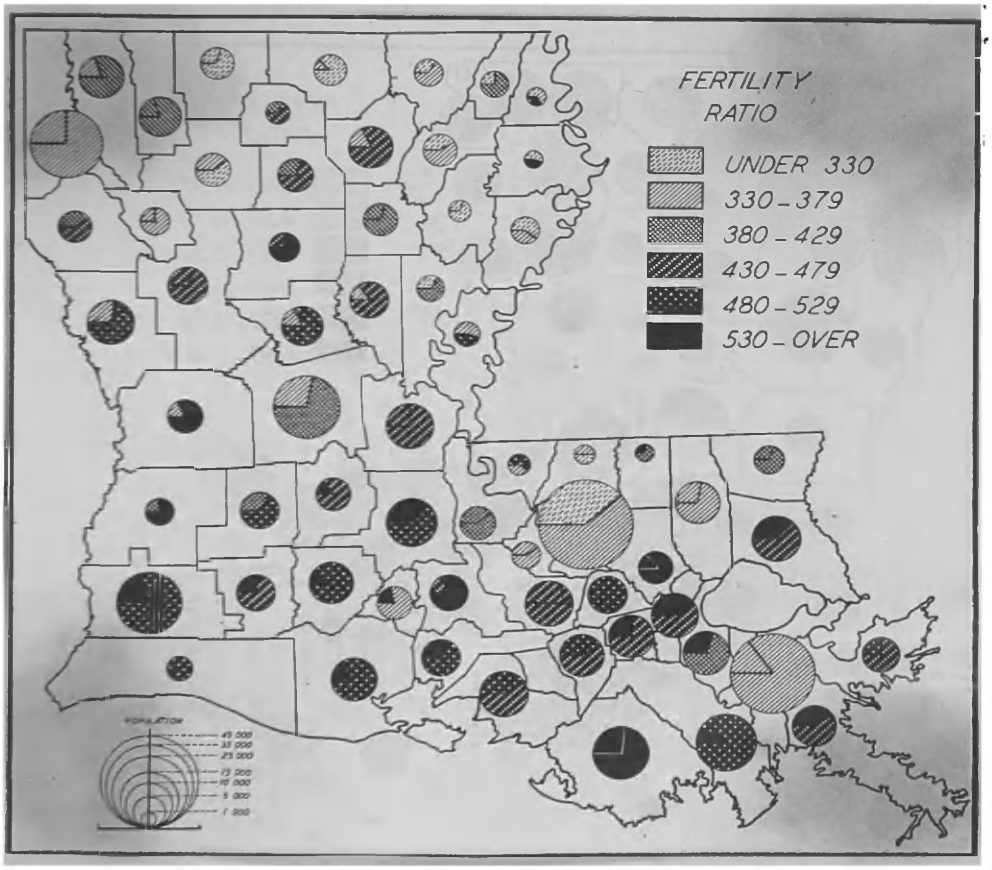

Figure 17. Fertility Ratios of Rural-Nonfarm Residents in Louisiana, by Race and Parish, 1940.

In studying fertility differentials by race in the rural-farm population of the state, fertility indices were plotted on a base map in a manner similar to that for the rural-nonfarm population. (See Figure 18.)

The map indicates at once that rural-farm Negroes are generally more fertile than rural-farm whites. There is, however, a notable exception, namely that rural-farm Negroes in Mississippi delta areas have distinctly lower rates of reproduction than those for the rural-farm whites. The delta parishes in which white fertility exceeds that of Negroes embrace Concordia, Tensas, Madison, East Carroll, Morehouse, Richland, Franklin, and Catahoula. In only one other parish, Beauregard, in the western part of the state, do whites exceed Negroes in rate of reproduction. In a total of only 10 of the 63 parishes having rural-farm population, therefore, do whites possess a higher rate of reproduction than do Negroes.

Thus, the evidence as to racial differences in fertility based upon the parish as a unit within which a comparison may be made is not clear. Neither whites nor Negroes are consistently more fertile in each of the three residential categories. On the one hand, whites in urban centers appear to be somewhat more fertile than Negroes. On the other, whites in rural-farm areas, are distinctly less fertile than Negroes, while in rural-nonfarm population there seems to be little, if any perceptible difference in fertility.

In an effort to obtain still more homogeneous units through

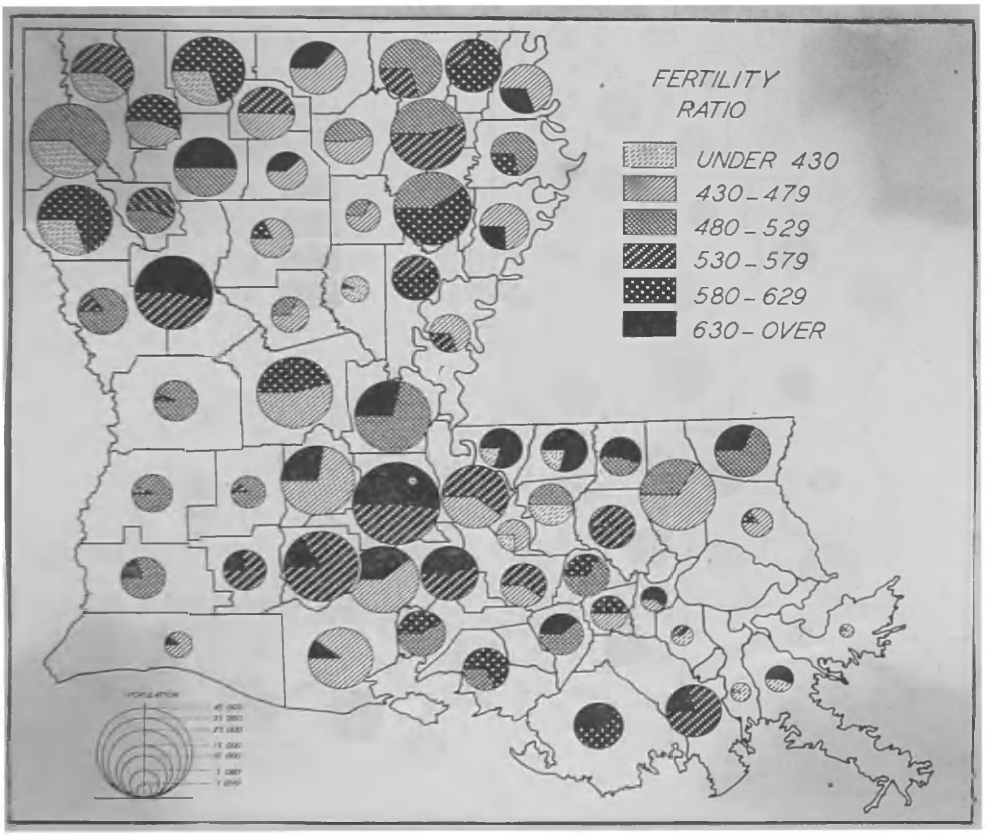

Figure 18. Fertility Ratios of Rural-Farm Residents in Louisiana, by Race and Parish, 1940.

which to study racial differences in rates of reproduction, all wards in each of the types of farming areas were classified according to percentage of Negroes and degree of urbanity. Then fertility ratios were computed not only on the basis of the proportion of Negroes but also on the basis of the degree of urbanity. If fertility is found to increase in each of the residential categories of the types of farming areas as the proportion of Negroes increases, we may be certain of higher fertility among Negroes than whites. If, on the other hand, fertility decreases with increasing proportions of Negroes, we may be assured of higher fertility among whites than Negroes. The results of this cross-classification are shown in Table XII.

An examination of the total columns of this table indicates great variability since the fertility indices neither increase nor decrease consistently with an increasing proportion of Negroes. For all the ward populations in the state classified by percentage of Negroes, those having the smallest percentage (0-14 per cent) have the highest fertility ratio, or 492. Those wards whose populations have 15-29 per cent Negroes have an index of 450, those with 30-59 per cent Negroes have an index of 396, and those with 60 per cent or more have an index of 483. In five of the types of farming areas (Upland Cotton, Central Louisiana Mixed, Sugar Cane, East Louisiana Cotton - Dairy - Part-Time, and the Gulf Coast Dairy - Trucking - Fruits), rates of reproduction increase with an increasing proportion of Negroes. In the other five types of farming areas (Delta - Red River

TABLE XII

FERTILITY RATIOS FOR WARDS WITHIN THE TYPES OF FARMING AREAS IN LOUISIANA, ACCORDING TO PROPORTION OF NEGROES AND DEGREE OF URBANITY, 1940

Type of Farming Area	Fertility Ratios by Degree of Urbanity and Percentage of Negroes									
	Total					10,000 or More				
	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over
TOTAL	430	492	450	396	483	268	-	345	261	-
Upland Cotton	452	407	425	440	509	-	-	-	-	-
Delta-Red River Cotton	371	555	457	330	450	239	-	-	239	-
Sand Hills-Cut Over	440	489	420	397	-	-	-	-	-	-
Central Louisiana Mixed	507	492	515	498	558	329	-	-	329	-
Rice	472	509	483	423	-	358	-	-	358	-
Sugar Cane	493	519	525	467	533	360	-	-	360	-
Brown Loam Mixed	322	609	331	271	423	204	-	-	204	-
East Louisiana Cotton-Dairy-Part Time	467	484	420	484	613	364	-	364	-	-
Strawberry	433	578	462	377	-	-	-	-	-	-
Gulf Coast Dairy-Trucking-Fruit	398	360	367	443	601	315	-	308	332	-

TABLE XII (Continued)

Type of Farming Area	Degree of Urbanity and Percentage of Negroes														
	2,500 to 10,000					Under 2,500					Unincorporated				
	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over
TOTAL	391	446	384	397	329	486	464	498	487	481	509	516	496	508	514
Upland Cotton	360	-	383	340	386	447	393	491	440	500	530	491	490	528	544
Delta-Red River Cotton	339	-	352	351	311	480	563	505	486	449	520	553	556	521	510
Sand Hills-Cut Over	336	-	283	362	-	448	429	467	452	-	507	532	458	519	-
Central Louisiana Mixed	505	-	-	505	-	560	-	509	587	494	566	492	557	587	587
Rice	451	458	409	569	-	532	536	535	503	-	557	534	577	-	-
Sugar Cane	416	431	423	407	-	508	516	555	484	583	540	563	589	522	530
Brown Loam Mixed	130	-	-	130	-	460	-	-	332	484	401	609	331	403	404
East Louisiana Cotton-Dairy-Part Time	317	-	-	317	-	485	-	508	438	606	565	484	551	596	624
Strawberry	382	-	-	382	-	419	-	449	367	-	567	578	535	-	-
Gulf Coast Dairy-Trucking-Fruit	410	-	404	430	-	392	-	306	458	-	417	360	392	469	601

Cotton, Sand Hills - Cut-Over, Rice, Brown Loam Mixed, and Strawberry), rates of reproduction decrease with an increasing proportion of Negroes.

A study of fertility indices in the wards having unincorporated population only, indicates no consistent association between rate of reproduction and proportion of Negroes. For the total unincorporated population, ward populations which contain the smallest proportion of Negroes are highest in fertility, followed very closely by ward populations which contain 60 per cent or more, 30-59 per cent, and 15-29 per cent, the indices being 516, 514, 508, and 496, respectively. The unincorporated population in the Upland Cotton, Central Louisiana Mixed, East Louisiana Cotton - Dairy - Part-Time, and Gulf Coast Dairy - Trucking - Fruit areas increased in fertility with increasing percentages of Negroes. On the other hand, persons residing in the unincorporated portions of the Delta - Red River Cotton, Sugar Cane, and Brown Loam Mixed areas, decreased in rate of reproduction when the percentage of Negroes in the population increased. No association between fertility and proportion of Negroes can be determined in the Sand Hills - Cut-Over, Rice, or Strawberry areas.

Similarly, the association between fertility and proportion of Negroes living in incorporated places having less than 2500 persons, in cities having between 2500 and 10,000 population, and in cities having 10,000 population or more, is highly variable. From this evidence it would seem that rates of reproduction for the two races are

similar when comparable residential areas are being compared.

B. Differences by Ethno-Religious Area. An additional test of the relationship between race and fertility may be made by holding constant ethno-religious factors. Consequently, fertility ratios were computed separately for the racial groups, according to residence, in French and non-French Louisiana. (See Table XI.) An examination of these ratios shows that neither whites nor Negroes are consistently higher in rate of reproduction. The total Negro populations of both French and non-French Louisiana are decidedly more fertile than the white populations. Among the urban residents, however, Negroes are more fertile than whites in French Louisiana but less so in non-French Louisiana. This is true even when urban centers are classified by size into those having from 2500 to 10,000 population and those having from 10,000 to 100,000 population. (See Table X.) Similarly, rural-nonfarm Negroes in the French portion are more fertile than whites in the French section; the reverse is true, however, in the non-French portion. Only in the rural-farm population of both areas do Negroes have decidedly higher rates of reproduction than do whites.

It would seem, therefore, that no clear-cut racial differences in fertility exist when ethno-religious influences are taken into consideration. Though not consistently higher in fertility in either the urban or rural-nonfarm segments of both areas, Negroes do have higher rates in the rural-farm population of the two areas.

C. Differences by Types of Farming Areas. Still another variable, type of farming, must be controlled in the study of racial differences in fertility. An examination of the fertility ratios for whites and Negroes, according to residence, in each of the five types of farming areas, shows that neither whites nor Negroes are consistently higher in reproduction rate. (See Table XI.) The total Negro population in each of the five types of farming areas is more fertile than the total white population. This fact, however, may be merely a reflection of relatively greater rural residence on the part of Negroes. It is necessary, therefore, to examine the ratios for the two groups within each residential category. Only in the urban centers do Negroes have higher fertility in the Rice area; in all other areas the urban whites are more fertile than urban Negroes. When urban centers in each type of farming area were classified according to size, Negro fertility in cities having from 2500 to 10,000 population and in those having between 10,000 and 100,000 population in the Rice area proved to be much higher than white fertility. (See Table X.) Negro residents of cities having between 2500 and 10,000 population in the Cane area are slightly more fertile than the white residents, while Negro residents of cities having between 10,000 and 100,000 population in the Small Fruits and Vegetables area are more fertile than the white residents. Negro rural-nonfarm residents are more fertile than white rural-nonfarm residents in the Upland Cotton, Rice, and Cane areas;

in the Delta Cotton and the Small Fruits and Vegetables areas, rural-nonfarm whites are more fertile than Negroes. In the rural-farm populations of all five types of farming areas, however, Negro fertility is higher than that of the white population.

From the evidence outlined in this chapter, the following statements with regard to racial differentials in fertility may be made:

1. When identical residential groups are compared, differences in the rates of reproduction between Negroes and whites tend to disappear.

2. Urban Negroes fall below urban whites in fertility, while rural-farm Negroes are consistently more fertile than rural-farm whites. Only slight differences can be detected between the races when rural-nonfarm groups are compared.

3. Rural-farm Negroes in the French and non-French portions of the state, and in all types of farming areas are more fertile than rural-farm whites. Urban Negroes in these classifications usually fall below the whites in fertility.

CHAPTER VII

ETHNO-RELIGIOUS DIFFERENTIALS IN FERTILITY

The preliminary mapping procedures used in the introductory stages of this study suggested that ethnic origin and religion may be associated with fertility. When fertility ratios were plotted for the populations of the 64 parishes (Figure 7), residents of parishes in southern, French Louisiana were remarkably high in rate of reproduction in comparison with those of northern, Anglo-Saxon Louisiana. The inhabitants of St. Landry, St. Martin, Terrebonne, Acadia, Evangeline, Jefferson Davis, Lafourche, Assumption, St. James, and Plaquemines Parishes, all in French Louisiana, were characterized by the highest rates of reproduction in the state. When rates of reproduction for the population of smaller, more homogeneous units were plotted on a base map of the state (Figure 9), the greater fertility in the French portion became even more striking. Ward populations having the very highest rates of reproduction were almost invariably located in the French, Catholic portion of Louisiana.

It is the purpose of this chapter, therefore, to examine this hypothesis more carefully. To do so it is necessary to study differentials between the two ethno-religious areas when such variables as residence and race are controlled. An examination of fertility ratios for the total population of French Louisiana reveals that the reproduction rate there is considerably higher than in the non-French area. Fertility ratios for these two major ethnic groups are 479 and

400, respectively. However, since race and residence both are related to rate of reproduction, it is necessary to examine the differences among both whites and Negroes in the various residential categories.

A. Differences by Residence. Rates of reproduction for the total population of each of the three residential categories are higher in French than in non-French Louisiana, as shown in Table XIII and Figure 19. Urban residents in French Louisiana have a fertility ratio of 344 compared with an index of only 244 for this group in non-French Louisiana.

Similarly, rural-nonfarm residents in French Louisiana are characterized by distinctly higher reproduction rates than those in non-French Louisiana. The rural-nonfarm residents of the French portion have a fertility index of 474, as compared with only 392 in the non-French portion.

Although the fertility differential between the two ethno-religious areas is not great, the rural-farm residents of the French section have a higher reproduction rate than those of the non-French section. The rural-farm residents in southern Louisiana have a reproduction rate of 574, as compared with 530 for the rural-farm residents in northern Louisiana.

The ethno-religious difference in fertility is again emphasized when the population of the two areas is classified according to the degree of urbanity. (See Table XIII.) Rates of reproduction for

TABLE XIII

FERTILITY RATIOS FOR ETHNO-RELIGIOUS AREAS IN LOUISIANA, ACCORDING TO RESIDENCE AND RACE, 1940

Residence Groups	Fertility Ratios by Ethno-Religious Area and Race					
	French Louisiana			Non-French Louisiana		
	Both	White	Negro	Both	White	Negro
TOTAL	479	445	554	400	391	411
Urban	344	340	356	244	259	221
Rural-Nonfarm	474	459	518	392	411	354
Rural-Farm	574	511	682	530	502	558
Cities 10,000 to 100,000	303	297	318	230	243	212
Cities 2,500 to 10,000	371	365	387	269	292	237
Towns & Villages 1,000 to 2,500	389	-	-	306	-	-
All Incorporated Territory	353	-	-	251	-	-
All Unincorporated Territory	538	-	-	491	-	-

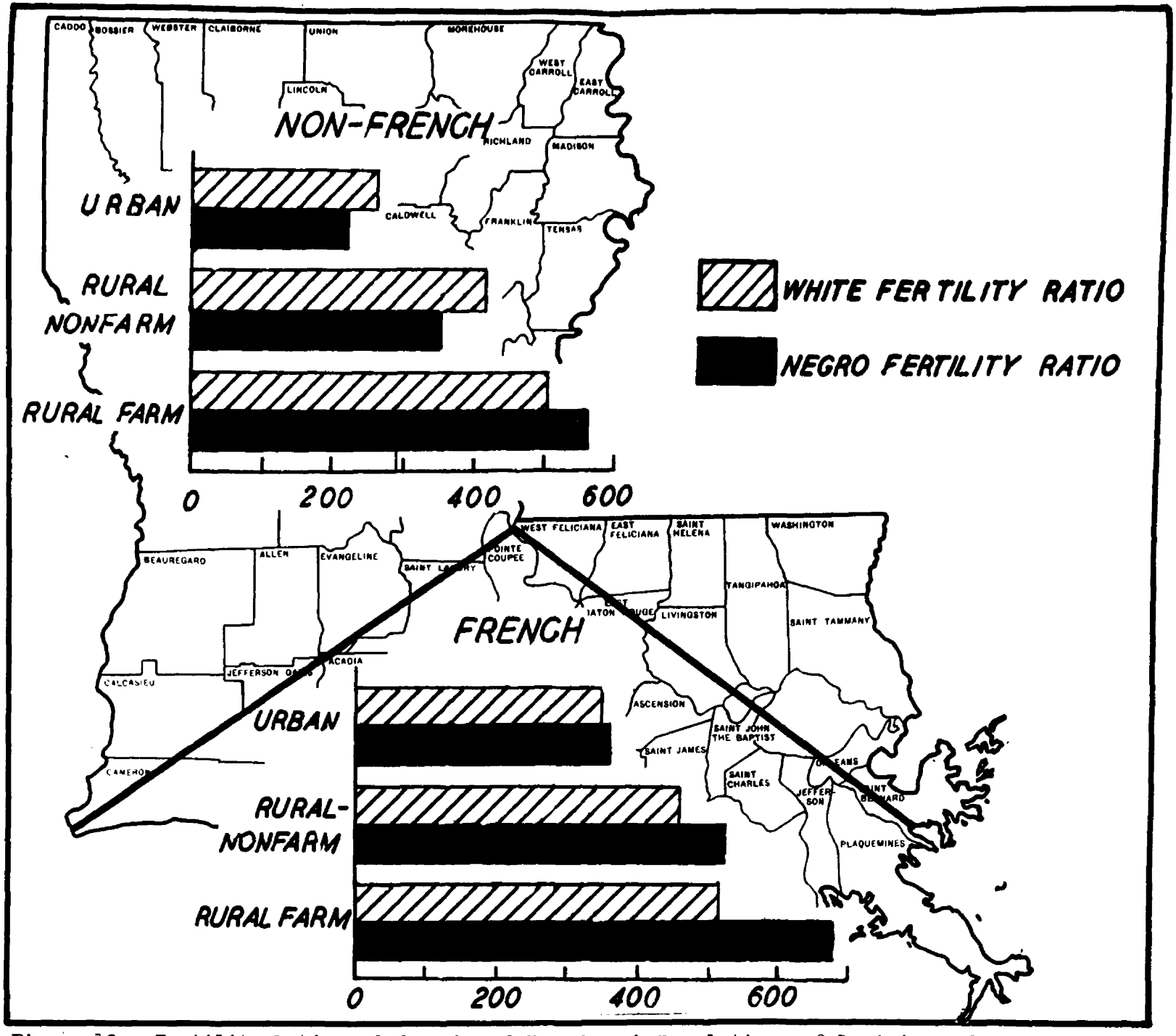

Figure 19. Fertility Ratios of French and Non-French Populations of Louisiana, by Race and Residence, 1940.

residents of urban centers having 10,000 to 100,000 population, and for those having 2500 to 10,000 population are much higher in French than in non-French portions of the state. Inhabitants of the largest aggregates in the French area have a fertility index of 303, compared with 230 for those of the non-French area. Residents of the smaller aggregates in the French section have a fertility ratio of 371, as compared with only 269 for those of the non-French section. Similarly, the small town and village inhabitants of French Louisiana are more fertile than those in non-French Louisiana, the ratios being 389 and 306, respectively. The residents of incorporated places in French Louisiana, therefore, are characterized by a higher rate of reproduction than those of non-French Louisiana. Likewise, the total population residing in unincorporated areas in the French portion of the state is distinctly more fertile than comparable residents in the non-French portion. The fertility ratio for the former is 538, as compared with only 491 for the latter.

B. Differences by Race. Both the white and Negro residents of French Louisiana are characterized by higher rates of reproduction than for these groups in non-French Louisiana. (See Table XIII and Figure 19.) The total white population of French Louisiana has a fertility ratio of 445, as compared with only 391 for the white inhabitants of non-French Louisiana. All Negroes in the southern portion of the state have a fertility index of 554, significantly greater than the index of 411 for Negroes in the northern portion of the state.

White and Negro urban residents of the French portion have higher rates of reproduction than those living in the non-French portion. Urban whites in southern Louisiana have an index of 340, compared with 259 for those in northern Louisiana; urban Negroes residing in the south have a ratio of 356 compared with only 221 for those living in the north. When rates of reproduction were computed for urban aggregates, classified by size, both racial groups in the French area were found to be considerably more fertile than those in the non-French portion. Thus in cities having from 10,000 to 100,000 population, whites and Negroes in French Louisiana have indices of 297 and 318, respectively, while the corresponding rates for the racial groups for non-French residents are 243 and 212. The higher fertility is even more pronounced among the residents of the smaller urban aggregates. For the southern French cities having between 2500 and 10,000 population, the white and Negro rates of reproduction are 365 and 387, as compared with 292 and 237 for corresponding groups in the northern non-French cities.

White and Negro rural-nonfarm and rural-farm residents of the French area, likewise, have higher fertility rates than comparable groups in the non-French area. However, rural-nonfarm and rural-farm white fertility rates in the French area are not greatly in excess of those for residents of the non-French portion. Rural-nonfarm Negroes in southern Louisiana have a fertility index of 518, compared with only 354 for the rural-nonfarm Negroes in non-French Louisiana. The

rural-farm Negroes in the French portion have a fertility ratio of 682, compared with only 558 for rural-farm Negroes in the non-French portion.

From these data, we may conclude that:

1. Ethnic origin and religion is associated with the rate of reproduction.

2. The higher reproduction rate in French-Catholic Louisiana than in non-French, Protestant Louisiana holds true for all residence and racial groups.

CHAPTER VIII

DIFFERENTIALS IN FERTILITY BY TYPE OF FARMING AREA

Among the relationships suggested during the preliminary stages of this study was that high fertility may be associated with certain types of topography and land use. It was observed from Figure 9, for instance, that fertility rates were extraordinarily low in the wards adjacent to the Mississippi River, while in those somewhat removed they were very high. Although both areas depend upon cotton, the former is one of large, highly commercialized plantations, while the latter is characterized more by small, individually owned or operated, family-size farms. It was also observed that the population living in the farming areas adjacent to the Central Louisiana Mixed farming and the Sugar Cane areas were exceptionally low in fertility.

If fertility differentials exist between the types of farming areas in Louisiana, differences must be observed for the several residential groups and for the two races. In order to study such differences,[1] the state was divided into ten types of farming areas. (See Figure 20.) All of the wards in each of the types of farming areas were classified according to degree of urbanity and the proportion of Negroes in the population. Fertility ratios were then

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[1] The classification of farming types used here is based upon a study made by the Louisiana State University, Department of Agricultural Economics. For purposes of this investigation, the Delta Cotton area was combined with the Red River Delta Cotton area, and the Sand Hills was combined with the Cut-Over area.

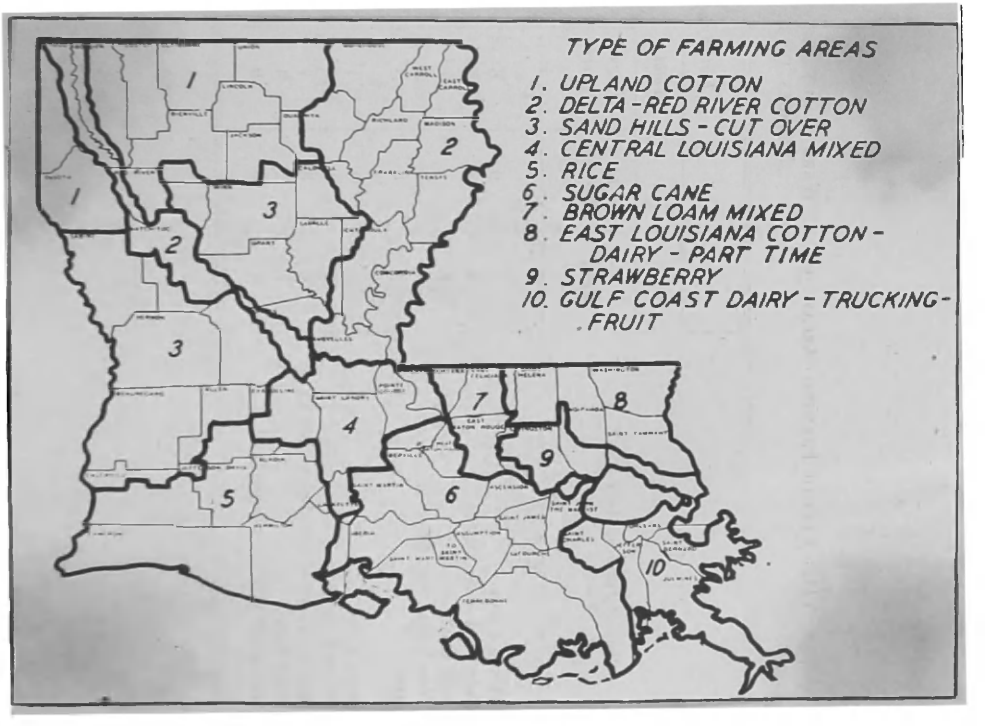

Figure 20. Type of Farming Areas in Louisiana, 1940.

computed for the wards in each of the several classes. Thus, on a ward basis, it is possible to control two factors of major importance, residence and race. The results of this cross-classification are shown in Table XII.

Irrespective of residence and race, the total population of the various types of farming areas is reproducing at widely different rates. At one extreme is the population of the Central Louisiana Mixed farming area with a fertility ratio of 507; at the other extreme is the population of the Brown Loam Mixed farming area with a ratio of only 322. The extremely low fertility rate in the latter is probably due to the unduly heavy "weighting" of the population in that area by the urban residents of Baton Rouge. Consequently, a ranking of the fertility of the total population in the types of farming areas is little more than a reflection of the degree of urbanity. Therefore, it is necessary to make comparisons of the rates of reproduction for the various residential groups within each type of farming area.

A. Differences by Residence. When the populations of the types of farming areas having wards containing cities of 10,000 population or more were grouped and fertility ratios computed, rates in the East Louisiana Cotton - Dairy - Part-Time, and the Sugar Cane areas ranked highest in fertility. (See Tables XII and XIV.) Residents of the Delta - Red River Cotton and the Brown Loam Mixed farming areas ranked lowest in rate of reproduction. Since cities having over 10,000 population are not represented in all types of farming areas, this comparison is not very revealing.

TABLE XIV

FERTILITY RANKINGS FOR WARDS WITHIN THE TYPES OF FARMING AREAS IN LOUISIANA, ACCORDING TO PROPORTION OF NEGROES AND DEGREE OF URBANITY, 1940

Type of Farming Area	Fertility Rank by Degree of Urbanity and Percentage of Negroes									
	Total					10,000 or More				
	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over
Upland Cotton	5	9	6	5	5	-	-	-	-	-
Delta-Red River Cotton	9	3	5	9	6	6	-	-	5	-
Sand Hills-Cut Over	6	7	7	7	-	-	-	-	-	-
Central Louisiana Mixed	1	6	2	1	3	4	-	-	4	-
Rice	3	5	3	6	-	3	-	-	2	-
Sugar Cane	2	4	1	3	4	2	-	-	1	-
Brown Loam Mixed	10	1	10	10	7	7	-	-	6	-
East Louisiana Cotton-Dairy-Part Time	4	8	7	2	1	1	-	1	-	-
Strawberry	7	2	4	8	-	-	-	-	-	-
Gulf Coast Dairy-Trucking-Fruit	8	10	9	4	2	5	-	2	3	-

TABLE XIV (Continued)

Type of Farming Area	Fertility Rank by Degree of Urbanity and Percentage of Negroes														
	2,500 to 10,000					Under 2,500					Unincorporated				
	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over	Total	0-14 Per Cent	15-29 Per Cent	30-59 Per Cent	60 Per Cent & Over
Upland Cotton	6	-	4	8	1	8	5	6	7	3	6	8	7	3	4
Delta-Red River Cotton	7	-	5	7	2	5	1	5	3	6	7	4	4	5	6
Sand Hills-Cut Over	8	-	6	6	-	7	4	7	6	-	8	6	8	6	-
Central Louisiana Mixed	1	-	-	2	-	1	-	3	1	4	2	7	3	2	3
Rice	2	1	2	1	-	2	2	2	2	-	4	5	2	-	-
Sugar Cane	3	2	1	4	-	3	3	1	4	2	5	3	1	4	5
Brown Loam Mixed	10	-	-	10	-	6	-	-	10	5	10	1	10	8	7
East Louisiana Cotton-Dairy-Part Time	9	-	-	9	-	4	-	4	8	1	3	9	5	1	1
Strawberry	5	-	-	5	-	9	-	8	9	-	1	2	6	-	-
Gulf Coast Dairy-Trucking-Fruit	4	-	3	3	-	10	-	9	5	-	9	10	9	7	2

In the wards containing urban aggregates having from 2500 to 10,000 persons, however, a complete comparison of rates of reproduction in the farming areas may be made. The very highest reproduction rate for residents of this size of urban aggregate is to be found in the Central Louisiana Mixed farming area, while the lowest rate is found in the Brown Loam Mixed farming section. Those types of farming areas in which the residents possess the highest rates of reproduction, exclusive of the Central Louisiana Mixed farming area, are the Rice, Sugar Cane, Gulf Coast Dairy - Trucking - Fruit, and the Strawberry areas, in that order.

In the wards containing aggregates having less than 2500 persons, reproduction rates vary from a high of 560 in the Central Louisiana Mixed farming section to a low of 392 in the Gulf Coast Dairy - Trucking - Fruit area. High fertility ratios, above 500, are to be found in the Rice and Sugar Cane areas. A very low fertility rate of 419, slightly above that for the Gulf Coast area, is to be found in the Strawberry area.

The most crucial residence group to the study of type of farming differences in fertility is the population of unincorporated territory. The population living outside incorporated areas of four types of farming areas have practically identical high rates of reproduction (Strawberry, Central Louisiana Mixed farming, East Louisiana Cotton - Dairy - Part-Time, and the Rice sections). The fertility indices in these four areas all fall within the narrow range from 557 to 567.

The population residing in the Brown Loam Mixed and the Gulf Coast Dairy - Trucking - Fruit areas ranks lowest in fertility, with indices of 401 and 417, respectively. All other types of farming areas have reproduction rates varying from 507 to 540.

Thus in each of the residential categories, the population of the Central Louisiana Mixed farming, the Rice, and the Sugar Cane areas are consistently highest in fertility. On the other hand, residents of the Brown Loam Mixed farming, the Delta - Red River Cotton, and the Sand Hills - Cut-Over areas are consistently lowest in fertility.

B. Differences by Race. If inhabitants of one type of farming area are higher in fertility than those of another, they must be consistently higher among all residential groups in wards containing the various proportions of Negroes. An examination of fertility rankings for the types of farming areas according to race and residence (Table XIV) is valuable in the analysis of differentials. See Table XII for the ratios as calculated.

It was found that all residence groups residing in the Central Louisiana Mixed farming, the Rice, and the Sugar Cane areas tend to be consistently highest in fertility, while the Brown Loam Mixed, the Delta - Red River Cotton, and the Sand Hills - Cut-Over areas tend to be consistently lowest in fertility. As a further test, however, this relationship must be true when the influence of race is controlled.

In all of the groups of wards, classified according to percentage of Negroes, the population of the Central Louisiana Mixed

farming area ranks relatively high in fertility. Only where the proportion of Negroes is very low (0-14 per cent), does the population of this type of farming area rank low. The reproduction rate for the population of this group of wards is low in the unincorporated parts of this type of farming area. In all other groups of wards where the proportion of Negroes is higher, residents of the Central Louisiana Mixed farming area rank very high.

When racial differentials in fertility are considered for the residents of the Rice area, it is found that fertility is generally very high. The residents of unincorporated areas, where the proportion of Negroes is lowest (0-14 per cent), rank fifth in rate of reproduction. In the wards with larger proportions of Negroes, the population of the Rice area proves to be relatively high in fertility.

Inhabitants of the Sugar Cane area are also among the highest in fertility when race is held constant. Among the unincorporated areas having 60 per cent or more Negroes, however, residents of the Sugar Cane area rank low in fertility. In the groups where the proportion of Negroes is smaller, the population of this area ranks relatively high in reproduction rate.

When both racial groups are considered, inhabitants of the Brown Loam Mixed farming area are generally of very low rank in fertility. A notable exception, however, is to be found in the population of the wards having the smallest proportion of Negroes (0-14 per cent). In this instance, residents of the area possess the very

highest rate of reproduction.

Residents of the Delta - Red River Cotton area are not consistently low in fertility in all wards having varying proportions of Negroes. Where the proportion of Negroes is low (0-14 per cent and 15-29 per cent), fertility ratios are fairly high; where the proportion of Negroes is high (30-59 per cent and 60 per cent or over), fertility ratios are fairly low. Thus, in the unincorporated territory of this area, residents of wards having 0-14 per cent Negroes rank fourth in fertility, while residents of wards having 60 per cent or more Negroes rank next to the lowest in reproduction rate.

The population of the Sand Hills - Cut-Over area consistently ranks among the lowest of the farming areas in fertility when racial differences are taken into account. This is true for the population of all groups of wards classified according to the proportion of Negro residents.

In three of the remaining types of farming areas, the Upland Cotton, East Louisiana Cotton - Dairy - Part-Time, and the Gulf Coast Dairy - Trucking - Fruit areas, reproduction rates are among the lowest where the proportion of Negroes is low, but among the highest where the proportion of Negroes is high. In the fourth area, the Strawberry section, fertility appears to be high where the proportion of Negroes is low.

From the foregoing analysis the following statements as to the differentials in fertility between types of farming areas may be made:

1. When similar residential and racial groups are compared, little difference in fertility exists among the types of farming areas.

2. Although impossible to assign the types of farming areas a specific rank, there is a strong tendency for the population in certain areas to be consistently high in fertility for all residential and racial groups. Probably because of their French population and culture, those residing in the Central Louisiana Mixed farming, the Sugar Cane, and the Rice areas are generally characterized by higher rates of reproduction than residents of other types of farming sections. On the other hand, inhabitants of the Brown Loam Mixed farming, the Delta - Red River Cotton, and the Sand Hills - Cut-Over areas are rather consistently lower in fertility than residents of other areas.

3. As far as one may judge on this basis, a disproportionately large share of the future population of the state is not being produced in the areas of lowest economic opportunity, in sections whose poor soils doom so many to a life of hardship and poverty.

CHAPTER IX

COMPARISON WITH THE UNITED STATES

In order to compare rates of reproduction in Louisiana with those in other states, fertility indices were computed for residents of all 48 states, according to residence and race. These indices were then ranked according to size. Since it was felt desirable to have an over-all picture based upon more homogeneous units than the states, fertility ratios for the rural-farm white and Negro populations in each county were computed. These data were then plotted separately on base maps as an introduction to the more detailed comparisons. In the analysis to follow, two comparisons are emphasized: (1) the fertility of Louisiana's population is compared with that of all states, and (2) the fertility of Louisiana's population is compared with that of eleven other southern states. Due to the overwhelming importance of residence and race as factors in differential fertility, the analysis is restricted to comparisons within residential and racial groups.

Figure 21 provides a comprehensive view of the variations in fertility among rural-farm white residents throughout the United States. While rates of reproduction in Louisiana show up comparatively high, fertility among large portions of the white farm population in the Mountain states, in the Dakotas, and in the Appalachian Mountain states is decidedly higher. The high rates of reproduction characteristic of the delta parishes and portions of southern Louisiana is evident from this map. Only the parishes surrounding the largest cities in this state have rates as low as those

Figure 21. Fertility Ratios of the Rural-Farm White Population in the United States, by Counties, 1940.

characterizing the northeastern states, the central states, and the states bordering upon the Pacific Ocean.

The variation among rural-farm Negroes throughout the United States is shown in Figure 22. Data for rural-farm Negroes are available for fifteen states, all of which are located in the South. The extremely high rates of reproduction which characterize the rural-farm Negroes residing in southern Louisiana parishes are striking. Only for isolated counties in other southern states are rates of reproduction so high. On the other hand, the rates of reproduction throughout the Louisiana-Mississippi-Arkansas delta are extraordinarily low.

With respect to fertility of her total population, irrespective of residence, Louisiana ranks nineteenth among all states and eighth among the eleven southern states. (See Tables XV and XVI.) The total populations of three southwestern states, New Mexico, Utah, and Arizona, rank first, second, and third, respectively, in fertility, while the total populations of three northeastern states, Connecticut, New Jersey, and New York, rank forty sixth, forty seventh, and forty eighth, respectively, in rate of reproduction. Of the southern states, the total populations of South Carolina, Mississippi, Kentucky, Arkansas, Alabama, North Carolina, and Georgia outrank the total population of Louisiana in fertility. The rate of reproduction for the total population of this state, however, ranks higher than that of Tennessee, Virginia, Texas, and Florida. Although other factors are undoubtedly

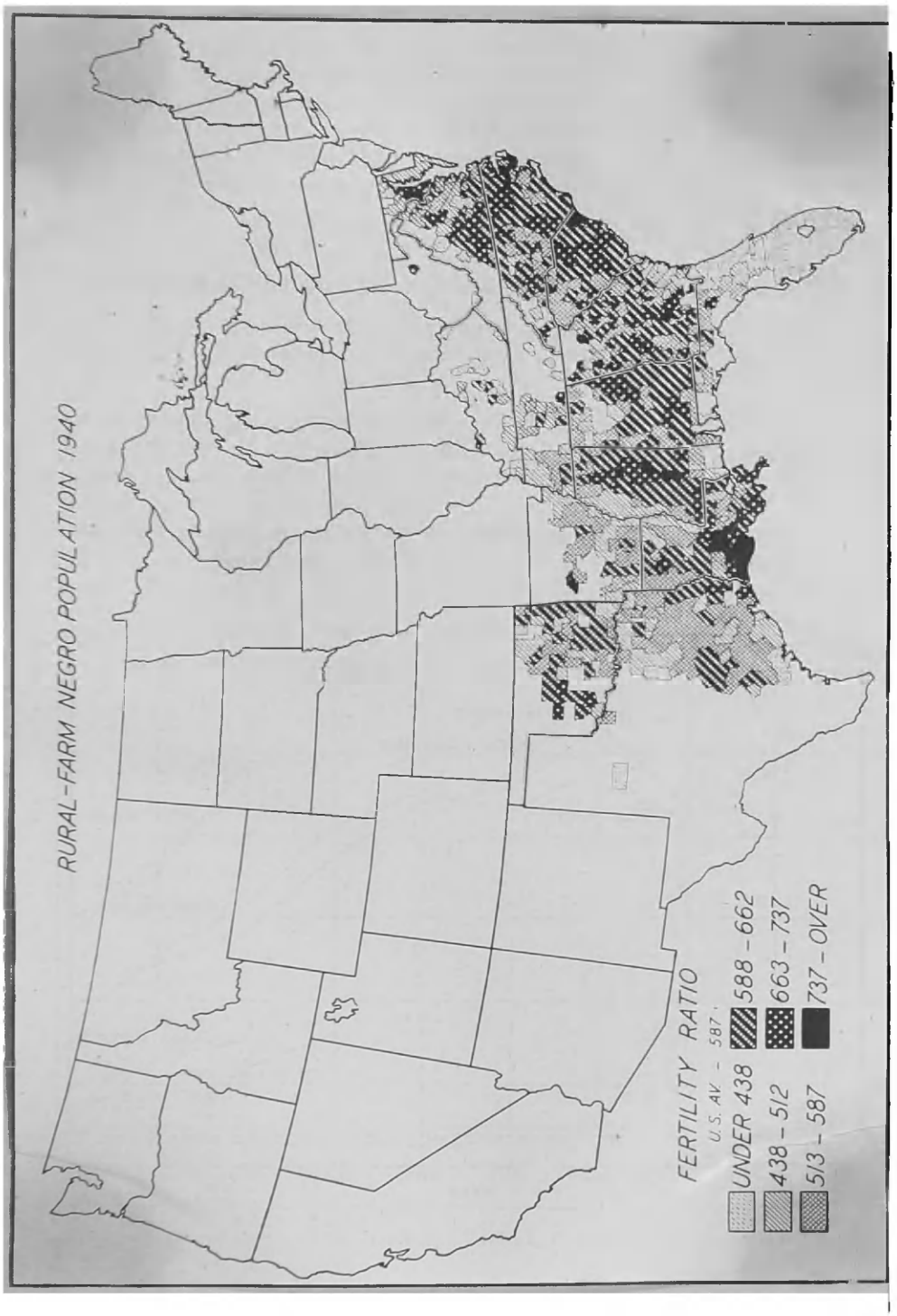

Figure 22. Fertility Ratios of the Rural-Farm Negro Population in the United States, by Counties, 1940.

TABLE XV

FERTILITY RANKINGS FOR THE FORTY-EIGHT STATES, ACCORDING TO RESIDENCE AND RACE, 1940

The States	Total				White				Negro			
	Total	Urban	Rural-Nonfarm	Rural-Farm	Total	Urban	Rural-Nonfarm	Rural-Farm	Total	Urban	Rural-Nonfarm	Rural-Farm
Alabama	11	25	11	5	9	24	10	7	16	25	27	16
Arizona	3	4	6	1	8	4	6	6	6	8	15	4
Arkansas	10	37	22	12	6	33	17	5	19	42	38	30
California	43	43	37	42	43	44	36	42	40	30	24	43
Colorado	23	17	7	16	21	18	7	11	34	31	16*	34*
Connecticut	46	42	48	48	46	42	48	48	36	7	48	48*
Delaware	40	36	42	39	41	37	43	39	33	29	39	38
Florida	34	44	25	19	34	43	22	21	35	43	35	28
Georgia	14	29	29	10	18	25	30	13	17	35	28	17
Idaho	5	3	4	15	4	3	5	9	12	46*	14*	23*
Illinois	42	41	38	35	42	41	37	35	47	37	37	31
Indiana	31	13	26	38	31	13	26	37	45	19	46	46*
Iowa	25	12	36	28	25	12	35	28	27	6	18*	13*
Kansas	32	18	43	34	32	20	42	33	39	15	45	37*
Kentucky	7	23	5	7	3	19	4	3	38	44	36	33

TABLE XV (Continued)

The States	Total				White				Negro			
	Total	Urban	Rural-Nonfarm	Rural-Farm	Total	Urban	Rural-Nonfarm	Rural-Farm	Total	Urban	Rural-Nonfarm	Rural-Farm
Louisiana	19	34	14	6	22	36	11	12	18	27	25	18
Maine	22	6	17	29	20	6	14	29	7*	1*	9*	9*
Maryland	37	35	39	32	40	38	40	38	29	17	30	20
Massachusetts	44	30	44	45	44	31	44	45	37	16	23*	29*
Michigan	30	11	8	27	29	11	8	25	44	21	43	24*
Minnesota	27	24	28	19	28	26	31	17	9	18	1	7*
Mississippi	6	40	35	9	10	32	28	15	14	40	42	21
Missouri	35	45	40	30	35	45	39	30	46	39	31	32
Montana	16	10	12	18	19	10	18	19	2	3*	4	6
Nebraska	29	21	41	33	30	22	41	31	31	24	12*	26*
Nevada	24	20	13	31	26	21	15	32	8	14*	11*	14*
New Hampshire	33	14	34	44	33	15	34	44	20*	9*	33*	1*
New Jersey	47	46	47	47	48	47	47	47	42	22	41	36
New Mexico	1	2	1	2	1	2	1	1	4	28	3	5
New York	48	48	45	40	47	48	45	40	48	48	47	44

TABLE XV (Continued)

The States	Total				White				Negro			
	Total	Urban	Rural-Nonfarm	Rural-Farm	Total	Urban	Rural-Nonfarm	Rural-Farm	Total	Urban	Rural-Nonfarm	Rural-Farm
North Carolina	12	26	18	8	11	27	16	14	15	26	22	12
North Dakota	9	9	21	13	7	9	24	8*	1	13*	2*	3
Ohio	38	28	23	37	36	30	25	36	43	23	29	42
Oklahoma	17	19	20	14	14	17	21	10*	22	34	21	22
Oregon	39	47	33	41	38	46	32	41	25	36	13*	40*
Pennsylvania	41	32	30	36	39	34	29	34	41	20	32	45
Rhode Island	45	31	46	46	45	35	46	46	22	4	17*	39*
South Carolina	4	16	15	3	13	23	20	18	11	12	19	11
South Dakota	13	8	31	23	14	8	38	23	3	2*	6	8
Tennessee	20	33	9	22	12	28	9	20	32	41	44	27
Texas	26	22	27	24	24	14	27	27	30	47	40	25
Utah	2	1	2	4	2	1	2	2	10	38*	10*	10*
Vermont	18	7	16	25	17	7	13	22	28*	5*	33*	47*
Virginia	21	39	10	21	22	40	12	26	21	33	20	19
Washington	36	38	32	43	37	39	33	43	24	32	8	41
West Virginia	8	27	3	11	5	29	3	4	26	45	26	35*
Wisconsin	28	15	19	26	27	16	19	24	13	11	5	15*
Wyoming	15	5	24	17	16	5	23	16	5*	10*	7*	2*

*Based upon less than 1,000 females aged 15-44.

TABLE XVI

FERTILITY RANKINGS FOR TWELVE SOUTHERN STATES, ACCORDING TO RESIDENCE AND RACE, 1940

Southern States	Total				White				Negro			
	Total	Urban	Rural-Nonfarm	Rural-Farm	Total	Urban	Rural-Nonfarm	Rural-Farm	Total	Urban	Rural-Nonfarm	Rural-Farm
Alabama	5	4	4	2	3	4	3	3	4	2	5	3
Arkansas	4	9	8	8	2	9	7	2	7	9	9	11
Florida	12	12	9	9	12	12	9	10	11	10	7	10
Georgia	7	6	11	7	9	5	12	5	5	6	6	4
Kentucky	3	3	1	4	1	2	1	1	12	11	8	12
Louisiana	8	8	5	3	9	10	4	4	6	4	4	5
Mississippi	2	11	12	6	4	8	11	7	2	7	11	7
North Carolina	6	5	7	5	5	6	6	6	3	3	3	2
South Carolina	1	1	6	1	7	3	8	8	1	1	1	1
Tennessee	9	7	2	11	6	7	2	9	10	8	12	9
Texas	11	2	10	12	11	1	10	12	9	12	10	8
Virginia	10	10	3	10	9	11	5	11	8	5	2	6

influential, the degree of urbanity is very important in determining these rankings. Consequently, it is necessary to make residential and racial comparisons separately in the various states.

In addition to the specific rankings shown in Tables XV and XVI, an effort is made to provide a graphic comparison of reproduction rates in the 48 states. Consequently, a series of three maps (Figures 23, 24, and 25) was drawn. Figure 23 shows reproduction rates for the urban population in each of the states. The areas of the circles represent the size of the urban population. Segments starting at nine o'clock and moving clockwise indicate the proportion of the urban population which is Negro, while segments starting at nine o'clock and moving counterclockwise indicate the proportion of "other races" in the urban population. In states where either of these racial groups account for less than one per cent of the urban population, no attempt is made to show their proportions. Since racial groups other than Negroes are numerically unimportant throughout the United States, fertility ratios are not indicated for them on the map. Thus, in some of the Pacific and Mountain states, the proportions of other races are clearly shown but their rates of reproduction are not depicted. The remainder of each circle represents the white population. Similar maps, Figures 24 and 25, show reproduction rates for the rural-nonfarm and rural-farm populations of the 48 states.

A. Residential Differences. The fertility rankings for each of the three residential groups in Louisiana are highly variable.

Urban residents in this state rank relatively low in reproduction rate. Rural-nonfarm and rural-farm residents, on the other hand, rank relatively high in fertility. Due to variations of this kind, it is necessary to compare rates of reproduction in Louisiana with those in other states for each of the three residence groups.

1. Urban. Louisiana's urban residents rank relatively low in fertility when compared with urban residents of all states and the eleven southern states. The rate of reproduction for urban whites in this state ranks especially low. Tables XV and XVI show that the rate of reproduction for the urban white population of Louisiana ranks thirty sixth among comparable groups in all states, and tenth among the eleven other southern states; for the urban Negro population of this state, the corresponding ranks are twenty seventh and fourth.

The relatively low fertility among urban residents in this state is emphasized in Figure 23. In only a few states such as New York, New Jersey, Missouri, and Oregon do urban whites appear less fertile than do those in Louisiana. The urban white population in all other southern states except Florida is more fertile than the urban white population in this state. Urban residents throughout the Mountain and Plains states appear to have especially high rates of reproduction. The urban Negro population of Louisiana, on the other hand, appears to be less fertile than the urban Negroes living in certain of the northeastern states for which the proportion of Negroes is shown. A notable exception, however, is to be found in New York's

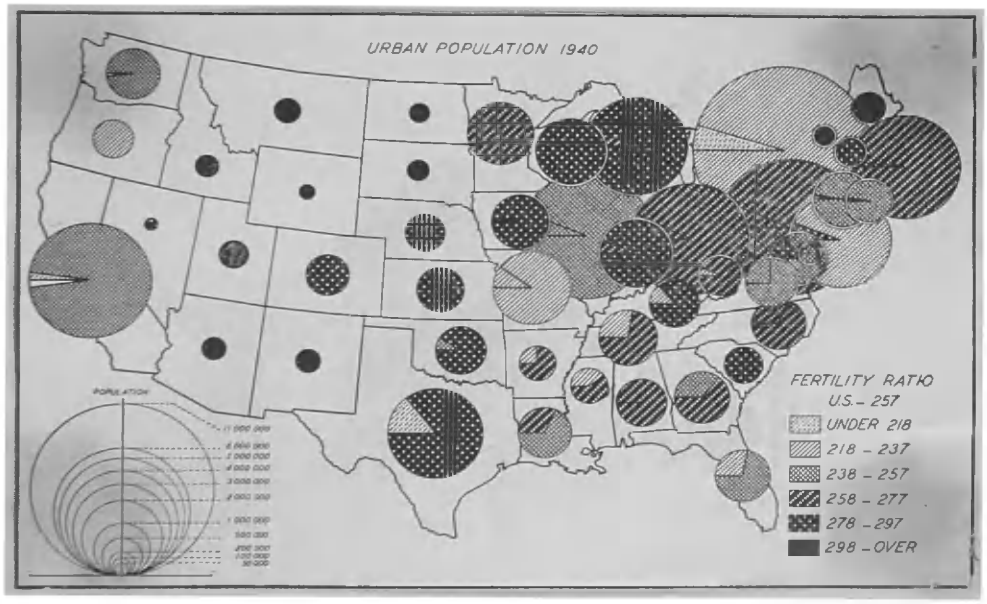

Figure 23. Fertility Ratios of the Urban Population of the United States, by Race and State, 1940.

urban Negroes. The urban Negro population of very few of the southern states appears more fertile than the urban Negro population of Louisiana. The map indicates that urban Negroes in Maryland and South Carolina are exceptionally fertile.

Thus, Louisiana's urban population ranks relatively low in fertility. The low rank of her urban residents is due in large part to the fact that 48 per cent of the urban whites and 50 per cent of the urban Negroes reside in New Orleans. In general, the states having a small urban population rank high in rate of reproduction, while those with a large, dense population rank well down the scale. Thus, the urban residents of the Mountain, Plains, and northern New England states have extraordinarily high rates, while New York, New Jersey, Illinois, and California possess very low rates. Numerous additional factors, however, influence the urban rankings.

2. Rural-Nonfarm. Louisiana's rural-nonfarm population ranks relatively high in fertility when compared with the rates of reproduction for this group in other states and in the South. Louisiana's rural-nonfarm whites rank especially high in fertility. As indicated by Tables XV and XVI, rates of reproduction among rural-nonfarm whites in Louisiana rank eleventh among those of comparable groups in all states, and fourth among the southern states; for the rural-nonfarm Negro population of this state, the corresponding ranks are twenty fifth and fourth.

The relatively high position occupied by rural-nonfarm residents

in Louisiana with respect to reproduction rate is indicated by Figure 24. Rural-nonfarm white residents throughout the New England, Middle Atlantic, East and West North Central, and Pacific states are characterized by lower rates of reproduction than are rural-nonfarm whites in this state. Throughout the southern states, rural-nonfarm whites possess very high fertility. Only those in Kentucky, however, show up distinctly more fertile than those in Louisiana. The very highest rates of reproduction among rural-nonfarm whites are to be found among the residents of five Mountain states, Kentucky, and West Virginia. The rural-nonfarm Negro population in this state, on the other hand, appears relatively fertile, although comparisons cannot be made for rural-nonfarm Negroes living in many states outside of the South. Rural-nonfarm Negroes in Louisiana show up more fertile than those in any of the states which border this state. At the same time, rural-nonfarm Negroes in Virginia and the Carolinas are characterized by much higher rates of reproduction than those in Louisiana.

The fertility rank of the rural-nonfarm population of Louisiana, in all probability, is influenced greatly by general patterns of urbanity. Such factors as the density and size of surrounding urban centers, and the amount of suburban residence, affect rural-nonfarm fertility. Such influences should be kept in mind when one is interpreting relative fertility for all rural-nonfarm populations.

3. Rural-Farm. The rural-farm population in Louisiana ranks extraordinarily high in fertility when compared with rural-farm

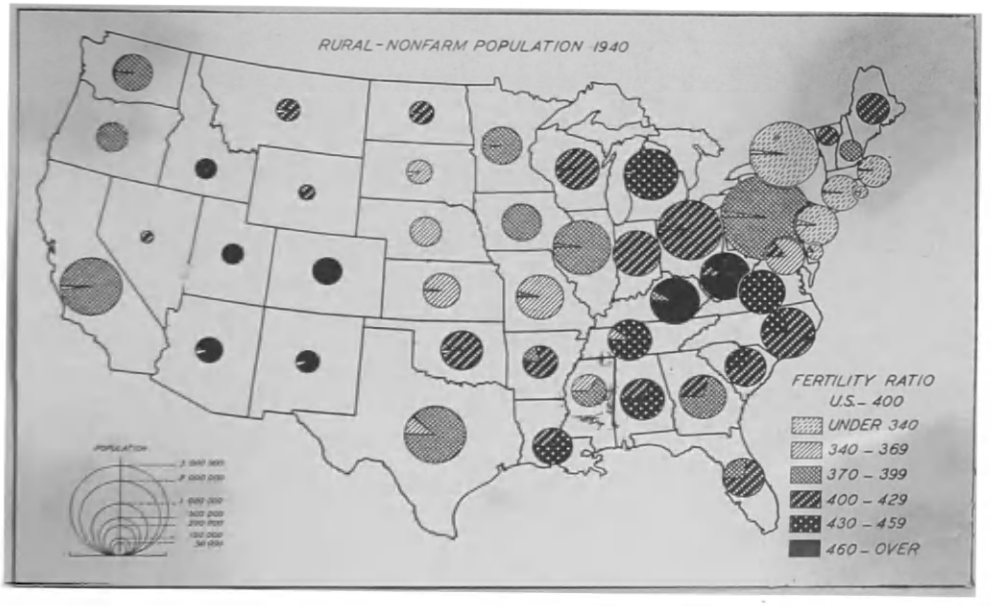

Figure 24. Fertility Ratios of the Rural-Nonfarm Population of the United States, by Race and State, 1940.

residents in all 48 states. Compared with the rates of reproduction for rural-farm people in other southern states, Louisiana's rural-farm residents also rank high. Tables XV and XVI indicate that the rate of reproduction for the rural-farm white population of this state ranks twelfth among comparable groups in all states, and third among these groups in southern states; for the rural-farm Negro population of Louisiana, the corresponding ranks are eighteenth and fifth.

Figure 25 emphasizes the high rates of reproduction characteristic of rural-farm people in Louisiana. In only a few states outside of the South do rural-farm residents possess fertility rates which approach the magnitude of those in this state. Rural-farm whites in numerous of the southern states, however, appear to be equally as fertile as those in Louisiana. The states whose rural-farm whites show up higher than those in this state in fertility include New Mexico, Utah, Kentucky, and West Virginia. The rural-farm Negro population in Louisiana, on the other hand, falls among the very highest in rate of reproduction. Since the proportion of rural-farm Negroes residing in states outside of the South is so small, Figure 25 does not afford a complete comparison. Rural-farm Negroes in Virginia, North and South Carolina, Georgia, and Alabama all fall into the very highest fertility class along with those of Louisiana. Rural-farm Negroes in the remaining southern states all are less fertile than those in this state.

Thus, the rate of reproduction of the rural-farm residents is

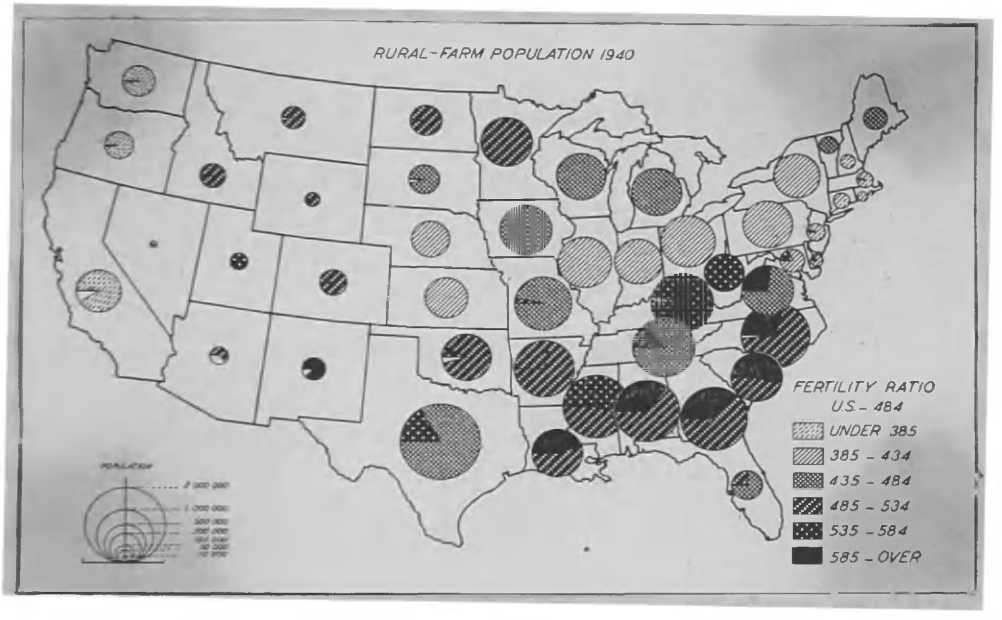

Figure 25. Fertility Ratios of the Rural-Farm Population of the United States, by Race and State, 1940.

very high in Louisiana. Rural-farm whites in this state are exceeded in fertility only by rural-farm residents of states having high proportions of Spanish-Americans and Mormons, by residents of two Appalachian mountain states, by the farm people of North Dakota, and by farm residents in several of the southern states. Actually, rural-farm Negroes in Louisiana are very fertile -- more fertile than a ranking of eighteenth would suggest. Of the seventeen states whose rural-farm Negroes exceed those of Louisiana in fertility, only four have more than one per cent Negro population. Of these four, only Arizona is located outside of the South.

B. Racial Differences. Fertility rankings for each of the racial groups are highly variable. Although both white and Negro rates of reproduction in Louisiana are higher than those in more than half of the states, the whites rank somewhat lower than the Negroes, or twenty second as compared with eighteenth among the states. It is our purpose in this section, therefore, to examine the rates of reproduction characterizing the racial segments of Louisiana's population in relation to those of other states.

1. Whites. The white populations of Louisiana residing in urban centers are among the least fertile in the nation. (See Tables XV and XVI and Figure 23.) Somewhat less fertile, however, are the white urban residents of such states as New York, New Jersey, Missouri, and Oregon. Of the southern states, the whites residing in the cities of only Virginia and Florida are less fertile than those in this state.

The whites included in Louisiana's rural-nonfarm population possess relatively high rates of reproduction when compared with those of all states and with the southern states. This statement finds confirmation in Tables XV, XVI, and Figure 24. The white populations classified as rural-nonfarm in several of the Mountain states and in West Virginia are clearly more fertile than this group in Louisiana. Exclusive of the white rural-nonfarm inhabitants of Kentucky, Tennessee, and Alabama, those in this state are the most fertile in the South.

The white segment of Louisiana's rural-farm population ranks high in rate of reproduction both among all states and among the eleven southern states. (See Tables XV, XVI, and Figure 25.) The high rate of reproduction characterizing farm residents in Louisiana is in sharp contrast with the very low rate characterizing this group throughout the northeast, the middlewest, and the Pacific coast. The whites who live on Louisiana's farms are also distinctly more fertile than those residing on farms in Texas, Florida, Tennessee, and Virginia.

2. Negroes. Although Negroes residing in the cities of Louisiana rank relatively low in fertility when compared with urbanites in all states, they rank relatively high among the urban residents in southern states. (See Tables XV, XVI, and Figure 23.) Negroes living in the cities of only three southern states, South Carolina, Alabama, and North Carolina, are more fertile than those living in the cities

of this state.

The Negro portion of Louisiana's rural-nonfarm population ranks relatively low among similar groups residing in all other states, but it ranks relatively high among comparable groups in southern states. A comparison of reproduction rates of Negro rural-nonfarm residents in this state with those in other states outside of the South is unsatisfactory since more than one fifth of the 48 states have fewer than 1000 Negro rural-nonfarm women between the ages of 15 and 44. When comparison is restricted to southern states, Negro rural-nonfarm residents in this state prove to be more fertile than those of other southern states, except South Carolina, Virginia, and North Carolina.

Although ranking low among the states (Tables XV and XVI), Negroes living on farms in Louisiana are more fertile than those in all other southern states except the Carolinas, Alabama, and Georgia. (See Tables XV and XVI.) Negroes living on the farms in numerous states outside of the South are extraordinarily fertile. However, nearly half of the states whose Negro farm inhabitants outrank those of Louisiana contain fewer than 1000 Negro rural-farm females between the ages of 15 and 44 years.

The position of Louisiana's population with respect to fertility may be summarized as follows:

1. Reproduction rates for Louisiana's urban residents are relatively low. Especially low is her urban white population. In only twelve states are the rates of reproduction among urban whites

lower than for those in Louisiana. Although ranking relatively low among states whose proportions of Negroes are small, Louisiana's urban Negroes are less fertile than in the Carolinas and Alabama only.

2. Reproduction rates for Louisiana's rural-nonfarm residents are relatively high. Fertility rates for rural-nonfarm whites residing in only ten states, three of which are in the South, outrank Louisiana's rural-nonfarm whites. For rural-nonfarm Negro residents, the rates of reproduction for these groups in twenty-four states, only three of which are in the South, outrank Louisiana's rural-nonfarm Negroes.

3. Reproduction rates for Louisiana's rural-farm population are very high. Fertility rates for rural-farm white residents of only eleven states rank higher. Of these only three are in the South. Although ranking lower than the rural-farm Negro residents of seventeen states, rural-farm Negro rates of reproduction in Louisiana are higher than all except four of the southern states.

CHAPTER X

C O N C L U S I O N S

This study of differential fertility in Louisiana yields a number of important facts regarding the extent to which the population in various areas and groups in the state are contributing to the future population. Since each chapter contains a summary of the more important findings, the conclusions enumerated herein are restricted to a summation of the broader implications and probable future tendencies.

1. A study of the literature relating to differential fertility shows that differences in the rates of reproduction between groups have existed for many centuries. Although this phenomenon is ancient, technically adequate research methods for the study of differential reproduction rates date from the latter part of the last century. The differential in rates of reproduction between urban and rural groups was the first to be observed.

2. Human fertility throughout the greater part of the Western world and throughout nations peopled by Europeans has been declining steadily. The small family pattern, first originating in western and northern Europe early in the nineteenth century, now has diffused throughout most of the industrialized nations of the world. With minor fluctuations, fertility in this country declined progressively since the beginning of 1800. Since 1890, the earliest date for which data are available, the downward trend characterizes each of the divisions of the country. In general, this downward trend in reproduction

rate characterizes Louisiana's population. Although the fertility of Louisiana's population increased from 1850 to 1880, the trend has been downward since that time.

3. Of the factors influencing fertility in Louisiana, none is more important than that of residence. Consequently, the differential between urban and rural populations is the most pronounced. While fertility in Louisiana is inversely associated with population density, there is the additional tendency for thinly populated areas surrounding dense urban aggregates to have low, characteristically urban rates of reproduction. Thus, it would appear that a low rate of reproduction is an urban trait, and that rural areas, in proportion to the rate and degree to which they embody urban characteristics, tend to lower their fertility accordingly. In Louisiana, therefore, the most isolated, rural sections of the state will in all probability continue to produce the largest numbers of children. It will be these areas, however, in which the greatest rates of decline in fertility will come in the next several decades. Already extremely low in fertility, the urban residents may be expected to lower their rates relatively slightly.

4. Racial differences in fertility in Louisiana tend to disappear when strictly comparable residential groups are compared. The impact of urban residence upon the birth rate of the Negro in Louisiana is somewhat sharper than upon the white birth rate, perhaps because the Negro is relatively inexperienced as an urban resident. Rural-farm

Negroes in the state are somewhat more fertile than rural-farm whites. This tendency is due, in all probability, to the fact that although classified as "rural" by the Bureau of the Census, the Negroes are more rural than the whites in that urban culture traits have been absorbed less thoroughly by them.

5. The rate of reproduction among the French Catholics in this state is distinctly higher than among the Anglo-Saxon Protestants. Although the influence of religion will probably tend to maintain higher rates of reproduction among the French than the non-French, continued penetration of urban influences will probably cause a greater rate of decline in the French than in the non-French areas.

6. Very slight differences in fertility exist between the types of farming areas in Louisiana when comparable residential and racial groups are compared. There is, however, a strong tendency for the Central Louisiana Mixed, Sugar Cane, and Rice areas to have very high rates of reproduction. The Brown Loam, Delta - Red River Cotton, and the Sand Hills - Cut-Over areas, on the other hand, tend to have very low rates of reproduction. Insofar as can be determined from the present study, an unduly heavy burden of rearing children is not falling upon the residents of areas least able to support them.

7. Throughout the study, the Mississippi delta area stands out because of its extraordinarily low rate of reproduction. The indications seem to be that the low fertility of this section is attributable in a large degree to the highly commercialized nature of land use.

Thus, it would appear that the commercialization of agriculture operates in such a way as to depress the rate of reproduction among farm people just as the corresponding process in industry causes urban residents to adopt the small family pattern.

8. Louisiana, like many of the other southern states, is contributing an unduly large share of the total population of the United States. In comparison with those of other states, Louisiana's rural-farm and rural-nonfarm populations are especially fertile. Due to the fact that a large proportion of urban residents reside in the large city of New Orleans, however, Louisiana's urban population is relatively low in fertility. Thus, in comparison with other states, particularly those in the northeast, middle west and Pacific coast, Louisiana is contributing more than her share to the education and rearing of the nation's future citizenry.

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EXAMINATION AND THESIS REPORT

Candidate: **J. Allan Beegle**

Major Field: **Sociology**

Title of Thesis: **Differential Fertility in Louisiana**

Approved:

T. Lynn Smith
Major Professor and Chairman

Wm O Scroggs
Dean of the Graduate School

EXAMINING COMMITTEE:

T. Lynn Smith

Rudolf Heberle

Homer L. Hitt

Thomas N. Nelson

Roy Empey

A M Tolle

Date of Examination:

April 16, 1946